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ABSTRACT

This study analyzes the extent to which the assumptions and procedures of the Experience-Based Career Education model (EBCE) as developed by the Far West Laboratory (FWL) are supported by empirical data and by recognized scholars in educational theory. The analysis is presented as relevant to the more general problem: the limited availability of information about the theoretical basis of complex innovations. The study presents a brief review of antecedent conditions that impact on acceptance of career education and a summary of various pressures on schools for change. Various definitions of career education are presented and the developmental history of EBCE is summarized. The EBCE model is described in terms of its major design features, the selected analytic framework, and major assumptions derived from EBCE descriptions and procedures. A major section examines the derived model assumptions by identifying, organizing, and summarizing philosophies of education, theories of teaching, and empirical studies that relate to them. Each assumption is categorized as generally associated with either instructional objectives, entering behavior, instructional design and procedures, or performance assessment. Literature pertaining to each of these areas is reviewed and discussed in terms of its bearing on EBCE assumptions. A final chapter summarizes the data (revealing where the model is or is not supported by theory and empirical data and suggesting where further evaluation and/or research is needed) and describes the implications of the analysis. (Author/TA)

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The Theoretical Basis of Experience-Based Career Education

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C. Lynn Jenks

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FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

The Theoretical Basis of Experience-Based Career Education

Charles L. Jenks

Abstract

This study analyzes the extent to which the assumptions and procedures of the Experience-Based Career Education model (EBCE) as developed by the Far West Laboratory (FWL) are supported by empirical data and by recognized scholars in educational theory. The analysis is presented as relevant to the more general problem: the limited availability of information about the theoretical basis of complex innovations.

While considerable attention has been given to such issues as relevance of innovations and to the feasibility of their adoption, information concerning the rationale of new programs is usually not available. The study has implications for potential program adopters (to help them make more informed decisions concerning the appropriateness of the model's approach to learning), for developers of the model (to aid in dissemination efforts and guide further planning), and for the research and development community (to direct evaluation or research resources toward some of the as yet unvalidated or untested issues).

The study presents a brief review of antecedent conditions that impact on acceptance of career education and a summary of various pressures on schools for change. Various definitions of Career Education are presented and the developmental history of Experience-Based Career Education is summarized. An analytic framework is selected and used to identify and organize data about the EBCE teaching/learning process.

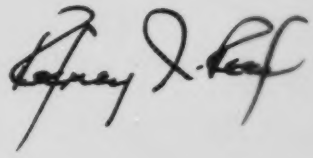
The model is then described in terms of its major design features, in terms of the selected analytic framework, and in terms of major assumptions that were derived from EBCE descriptions and procedures.

A major section examines the derived model assumptions by identifying, organizing, and summarizing philosophies of education, theories of teaching, and empirical studies that relate to them. To aid in the examination, each assumption is categorized as generally associated with either (1) instructional objectives, (2) entering behavior, (3) instructional design and procedures, or (4) performance assessment. The literature that pertains to each of these general areas is reviewed and discussed in terms of its bearing on EBCE assumptions.

A final chapter summarizes the data, revealing where the model is supported (or not supported) by theory and empirical data, suggesting where further evaluation and/or research is needed, and describing the implications of the analysis for selected audiences.

The analysis results in a number of conclusions. For example: (1) through the comparison of EBCE with four general approaches to organizing learning (the traditionalist, learning product, learning process, and progressive), EBCE is identified as most closely matching the two approaches known as learning process and progressive; (2) acceptance of the FWL-EBCE model in terms of its approach to learning may ultimately depend on the potential adopters' viewpoints concerning the purposes of education rather than evaluation (or research) data that suggests superiority of this innovation over another; (3) further studies are needed to investigate the kinds of students (attitudes, maturity, preferred cognitive styles, etc.) that most benefit from EBCE instructional procedures; (4) because many of the instructional

procedures of EBCE are substantially different from more traditional ways of educating students the status of the model as a validated theory of instruction is understandably mixed. Several assumptions basic to EBCE remain as hypotheses yet to be validated, and in a few cases, yet to be tested; and (5) EBCE is an alternative way of educating young people that should fill a pressing need, both in the present and in the foreseeable future.



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CHAPTER I

THE STUDY

Introduction

If mankind is to continue to improve the human condition, education is certainly one of the most important vehicles by which it will happen. A major school function in improving the human condition is to foster personal and intellectual development and creative exploration. For this function to be performed well, instructional programs and practices must be available that respond to learners in schools. Various research and development agencies have produced a large variety of programs and practices and many schools are choosing from among them. The selection process, however, often results in choices that are unsatisfactory.

There are many reasons why educational programs fail to last. One important reason is believed to be a lack of knowledge concerning theoretical bases. Such knowledge would give educational leaders something other than "fashion" upon which to base their decisions.

Wise selection depends to an important degree on (1) willingness and ability of the schools to examine and select from among alternatives those that are appropriate to the learners, and (2) the extent to which developers of new programs and practices provide information that permit school staffs to make more appropriate selections.

It is the second of these two requirements to which this study is directed--the availability of product specific information. It is believed that wise selections of new programs by schools can be enhanced if fully explicated rationales of such programs were made available. More importantly, it is the thesis of this study that explication of a new program's

rationale in terms of its empirical and theoretical basis is a valuable enterprise in itself. This study analyzes one major new program in terms of its rationale in order to explicate its theoretical base and to test its assumptions vis-à-vis existing theory.

The Problem

The problem addressed in this study was to examine the rationale of the Far West Laboratory Experience-Based Career Education model to determine the extent to which that rationale is supported by empirical data and by recognized scholars in educational theory. Further, the study addresses other, more specific questions. They are: To what extent does EBCE represent a validated theory of instruction? To what general movements in American education can EBCE be compared? What are the implications for the results of the study for various constituent groups?

Rationale of the Study

Having a rationale for a study implies that an explanation or exposition of the underlying assumptions and principles that guided the study is available. The assumptions used to organize the research process of this study were as follows:

Most developers of new instructional programs have a rationale for their work and may be operating from a well-thought-through theoretical framework. The explication of this rationale in terms of its major assumptions and a statement of the nature of the support (or lack of it)

the rationale possesses in empirical data and various theoretical formulations is often, however, left unsaid.

EBCE, like most innovative programs that received their initial impetus from dissatisfaction with the status quo, was designed and developed on the basis of the educational knowledge, experiences, and values of its research and development progenitors. An accumulation of educational knowledge, experience, and values, when brought to bear on a research and development problem, should result in a product or procedure that reflects those factors in a fairly consistent way. Most research and development efforts are conducted in a way that requires considerable trial, revision, and problem-solving. Thus such efforts are not hypothetical-deductive by nature but rather data-based. This approach to curriculum development is analogous to what Glaser and Strauss (1967) describe as the "discovery of grounded theory". They suggest that the discovery of theory from data systematically obtained from social research is at least equal in importance to verifying theory.

It is assumed that EBCE will be supported to an extent by some empirical data and by some theoretical formulations. However, it is not likely that it will be congruent with any particular one. Discrepancies will exist because of the nature of research and development enterprises. Developers who follow a test, revision, and retest development cycle are not overly concerned with consistency to an external set of criteria such as the principles of a particular theory. Their adjustments are more likely to be the result of such considerations as acceptance by constituents, effectiveness, feasibility, and the values of the developers.

The EBCE model, because it has been subjected to many test and revision cycles, is, to a large extent, a data-based educational program. Therefore, it is assumed that EBCE either will be generally consistent with one or more existing data-based theoretical formulations or that it will be sufficiently different so as to suggest a tentative theory of instruction that is, perhaps, largely eclectic.

It is assumed that attempts at theory building are useful, perhaps indispensable enterprises. Since there are varying opinions on the best approaches to improving theory, a diversity of approaches should be encouraged.

Snow (1973) suggests that "to the extent that a theory is useful in organizing data meaningfully and is productive of useful hypotheses, the theory is judged to be valuable. Thus in the present state of knowledge....in social and behavioral science, the primary criteria for evaluation of theory is usefulness, not truthfulness".

The approach for this study may be characterized as an evaluation of EBCE as a theory of instruction. To do this requires that the theory itself be described and then analyzed by testing its assumption with available data. To paraphrase Glaser and Strauss (1967), "the basic aim is the discovery of grounded theory from data systematically obtained from social research." In this study the data consists of both past and present research and evaluation studies. Snow (1973) supports this approach by suggesting that combining past and present efforts of researchers to evaluate theory is reasonable.

It is believed that evaluation of a program by examining its assumptions via the rather vast amount of past research efforts is somewhat unusual. Support for this approach, however, comes from Snow (1973), Glaser and Strauss (1964) and from Cohen (1974).

While some fundamental research has been generated by overarching theory, the discrete study, at least in education, has been the byword. Fragmented research in education seldom has impact--instead it often serves a conserving function in that it often suggests that whatever exists is working or is at least as good as its nearest competitor.

For this reason, it is believed that looking at a larger picture of education is useful. Examining a comprehensive educational program from the vantage point of a relatively complete set of assumptions will undoubtedly reveal some inconsistencies within the program being examined as well as between the program and other, perhaps quite popular, points of view about education. Discrepancies of the latter kind are to be expected and are the result of varying ethical systems among those who theorize. There are simply differing opinions about the nature and purposes of education. While some spokesmen believe that acquisition of knowledge and skills is the major purpose of schooling, others assert that guiding the learner through the maturation process is the foremost goal of schools.

Viewpoints held concerning the nature and purpose of education are not usually so discrete that they are clearly distinguishable from all others. Instead, many viewpoints tend to merge along a continuum. Thus, we would expect that the rationale of a comprehensive educational program could be identified with more than one theoretical position. But, since the purposes of this study are not solely to explicate the theory behind EBCE but also in a sense to "discover" and evaluate it, lack of external consistency is not seen as a problem.

Methodology

Because EBCE was designed as a comprehensive program of schooling, its assumptions will range rather widely among such entities as the purposes, the curriculum, roles of teachers and students, teaching-learning processes, evaluation, and so on. Therefore a technique by which to describe EBCE in terms of its assumptions and to organize the large amount of existing data used in the examination was needed. A scheme or model to guide the analysis was required. The problem in the selection of an appropriate model was one of identifying and explicating the characteristics of the innovation to be examined, selecting a general model of the educational process which was sufficiently broad in its coverage of various aspects of the total instructional process to permit the juxtaposing of EBCE features and which used similar terminology, and describing and relating key features of EBCE to the selected model.*

Attempts to either construct or select a model by which given phenomena may be organized and examined are fairly common. According to Macdonald (1965), "man has been busily constructing and creating metaphors for as long as we have any historical or archaeological evidence of his existence...they have functioned to create order... become tools for shaping the environment for his own purposes, for providing bases for his explanations of the nature of things, and as conceptualizations from which predictions could be made".

---

* Although there are four EBCE models available to adopters, for the rest of this study, "EBCE model" refers only to the FWL-EBCE project. This is because the assumptions used for the analysis were derived from FWL-EBCE procedures. While it is believed that much of the analysis and many of the conclusions are relevant to the other models, no such claims are made.

Models, then, are partly designed to help understand a phenomenon and to communicate the basis of that understanding. However, when there is confusion or disagreement about the phenomenal referent, communication is incomplete or distorted. For example, Macdonald continues by asking:

> What are we referring to when we talk about instruction? Is this something a teacher does, thus making instruction a sub-part of teaching? Or is instruction a process within which teaching is one of many sub-processes, such as learning, which take place? And, is instruction the act of putting a curriculum into operation? Or, is the curriculum the formal set of purposes, etc., which are only a part of the instructional process?

This somewhat circular series of questions serves to demonstrate the importance of consistency in use of terminology. For this study, Robert Glaser's teaching model was selected for the examination. Glaser (1962) developed a model which divided the teaching process into four components illustrated in Figure 1.

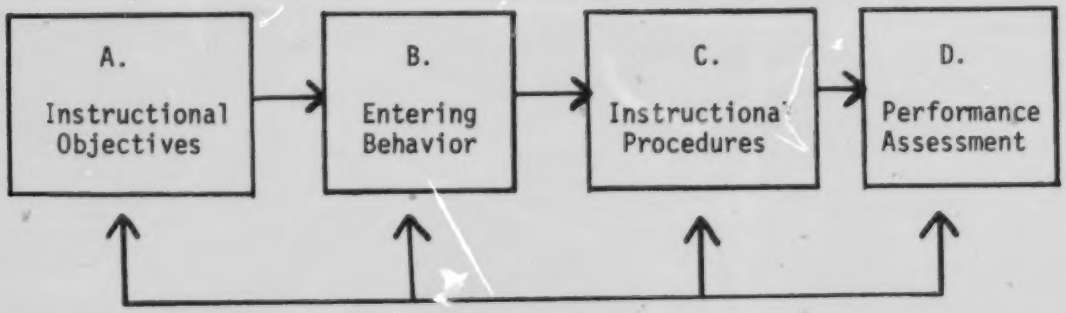

Figure 1
Glaser's Teaching Model

Instructional objectives, the first component, represents intended student attainment, entering behavior describes the student's readiness before instruction begins, instructional procedures are those things the

teacher decides and does,* and performance assessment consists of methods and procedures used to determine how well the student has attained the objectives. Glaser's model was selected because it provides an uncomplicated, yet adequate, conceptualization of the teaching process and can be used to cast most, if not all, instructional approaches. A second reason for its selection was that it is a framework from which it is convenient to organize the rather large body of information available about the teaching-learning process.

As suggested above, a set of assumptions, implicit in the EBCE model procedures, was derived. The derivation process was essentially deductive and thus should be viewed as tentative. The assumptions were then organized around Glaser's model of the teaching process and examined by synthesizing the relevant literature. The literature of consequence included philosophies of education, theories of teaching and learning, and empirical studies pertaining to various theories, as well as to the model itself. The synthesis was then examined in terms of the problem statement and key research questions.

* As will become evident in later sections, the Instructional Procedures component for this study includes what the student decides and does.

Limitations of the Study

It is necessary to bound the study - to set limits. The study addresses the nature of EBCE in terms of learning processes. While it is understood that the career education movement has important social, political, and historical antecedents, only brief attention is given to them. Further, claims were made that this is an evaluation study. But evaluation for this study refers to the assumptions and the support of those assumptions in data and theory. There is no intent nor effort to evaluate EBCE in terms of, for example, effectiveness, acceptance, ease of implementation, or its capability of solving current educational problems.

Importance of the Study

Procedures and methods once looked on as virtually unalterable fixtures of modern school practice are being changed or removed as a result of pressures in society. Several movements in American education have emerged as responses to these various pressures. One such response has been Experience-Based Career Education (EBCE). While not entirely dissimilar to vocational education, work-study programs, cooperative education, and similar alternatives, EBCE has evolved with certain unique features. For example, one unique feature is the extent to which EBCE relies on the relationship between students and selected adults in the community for general education rather than simply for the development of work skills.

The explication of EBCE's rationale via an examination of its assumptions in terms of empirical data and theory is important for a number of reasons. It will add knowledge concerning a major alternative program which can be used by professional educators to evaluate the merits of that program.

The study is important to the staff of professionals who have participated in its design and development as well as the National Institute of Education which funded EBCE. Both groups have a scholarly interest in the extent to which EBCE's rationale is coherent and supportive in terms of existing empirical data and recognized formulations of educational theory. Further, both groups are interested in the analysis as a possible basis for planning the future of EBCE research and development efforts.

There are a number of issues related to the use of EBCE by schools that are yet unresolved. One such issue has to do with policy decisions concerning dissemination. When analyzing alternative strategies for replicating EBCE, Cohen and Snyder (1974) recommended an analysis of EBCE's key assumptions by reviewing existing research and evaluation literature. They suggested that EBCE is "one member of that large class of social innovations which rests less on clear theoretical ideas or empirical findings about society than on general moral and social intuitions." An analysis of EBCE along the lines suggested by Cohen and Snyder could permit dissemination planners to better aim their efforts toward appropriate audiences.

Finally, the study is important because there is a need for work in educational theory. It is the intent of this study to summarize the results of the analysis in terms of EBCE's status as a theory of instruction. While such an attempt cannot account for all that occurs

in the teaching/learning process, it will be a beginning. The study will point out where inadequate or insufficient information exists, where assumptions remain unproved or untested, and hopefully help focus further research efforts.

Organization of the Study

This chapter has presented the problem being addressed, a rationale for the study, the methodology being used, some limitations, and importance of the study. In the chapter that follows, a fairly brief review is presented of some of the antecedent conditions that, to some extent, still exist, and that impact on the acceptance of career education. Included also is a short section on pressures schools face in terms of adoption of new programs. This review serves the purpose of placing EBCE in a social environment. No attempt, however, is made to evaluate the likely acceptance of EBCE in this environment.

In chapter III, EBCE is described in terms of major design features and goals, in terms of the analytic framework used to later organize available data, and in terms of major assumptions that were derived from EBCE descriptions and procedures. The derivation process resulting in a set of assumptions was essentially deductive. The results should be viewed as tentative.

A discussion of the derived assumptions which were examined by pulling together related literature and organizing it according to the previously described analytic framework and associated EBCE model assumptions is the focus of chapter IV.

A final chapter summarizes the data concerning the EBCE model. It points out where the model has support vis-á-vis theory and empirical data, discusses its status as a theory of instruction, where further evaluation and/or research is needed, and the implications for the analysis for selected audiences.

CHAPTER II

THE CONTEXT OF EXPERIENCE-BASED CAREER EDUCATION

Antecedents

In the beginning, educationally speaking, "career education" was wide spread in America in that the majority of youth were being trained in various occupations. Over time there was a gradual but persistent shift away from occupational training, which occurred either at the student's home or in an apprenticeship situation, toward education that took place largely in a classroom. Shifts of this kind usually are the result of changing social conditions and the ebb and flow of powerful spokesmen. This movement was uneven and fluctuated depending on the strength of any given movement to push back efforts of other aspiring movements. The rise and fall of various educational themes, of course, continue in contemporary times and are based partly on practicality and partly on interpretations of a "good" education.

American education, according to Keppel (1966), rests on two assumptions from which all else derives: the idea that man is potentially good and that this good can be brought about by education. But the concept of "educational goodness," like educational practice itself, shifts through history as competing viewpoints gain the advantage.

Taba (1962) suggests that views of educational functions can be summarized under three large headings: "education as preservation and transmission of cultural heritage, education as an instrument for transforming culture, and education as the means for individual development." For holders of the first view, the function of education is

to pass on the truths of the past to the new generation (Report of the Harvard Committee, 1945) and to cultivate the intellect (Hutchins, 1963 and Adler and Mayer, 1958). This approach rejects technical education or vocational education as being a responsibility of formal education.

The second point of view, education as an instrument for transforming culture, was espoused by those who felt that education and public policy were intimately related, and that education must deal with social needs in a constructive and creative manner. While appearing in educational writings over a long period of time, the impetus for the idea of education as a social process and as a means of effecting social change and improvement came with John Dewey. For example, Dewey (1937) wrote:

> I believe that: all education proceeds by the participation of the individuals in the social consciousness of the race ...knowledge of social conditions of the present state of civilization is necessary in order to properly interpret the child's powers...and that the school is primarily a social institution.

Although the social function of education is in itself variously interpreted by educators, certain ideas tend to run through all. Taba (1962) set forth these ideas as follows:

> ...Education must, and usually does, work in the cultural setting of a given society, at a given time, in a given place, shaping the individual in some measure to participate in that society. All decisions about education, including those about curriculum, are made within the context of a society. The values and focus of that society determine not only what manner of means exists but also to some extent what manner of man is needed....

While John Dewey is largely credited with the "culture transforming" view of education, an alternative interpretation of Dewey's writings resulted in yet the third view of the function of education--one that centered more emphatically on individual development. The progressive

education movement emphasized the individual and his full creative development. Such terms as "the whole child" and "right to self-discovery" were and are popular rallying cries. According to this approach, the school's function is to "introduce the student to skills and powers necessary for survival or for self-realization in our culture; it must also act as an integrating force in shaping beliefs and attitudes to make them coherent with the requirements of the democratic way of life" (Taba, 1962). Thus, pluralism and expectations of contradictory values are natural outcomes of such an educational view.

This movement received lofty support from the Committee for the White House Conference in their report of 1956:

> The order given by the American people to the schools is grand in its simplicity: in addition to intellectual achievement, to foster morality, happiness, and any useful ability, the talent of each child is to be sought out and developed to the fullest. Each weakness is to be studied and so far as is possible, corrected.

While each of these views is to be found in the present-day arena of educational discourse, their appearance and strong proponents occurred at different times. What began in the country as an elitist educational program was rejected in the eighteenth and nineteenth centuries with a move toward universal education. As social problems changed, according to Cremin (1961), the traditional curriculum was challenged by the progressive writers in the late nineteenth and twentieth centuries who were urging either education as social reconstruction or as an emphasis on the individual learner.

In the 1950's, major criticism came again from supporters of the academic curriculum in opposition to the emphasis on the individual learner and inter-disciplinary education. Partly as a result of events

in the 1950's (e.g., Sputnik), the National Defense Education Act was enacted placing increased emphasis on the separate disciplines. But in the 1960's, Jerome Bruner's The Process of Education, was the "new wave" of education. In it, Bruner proposed that the function of education was to introduce the student to several modes of inquiry used in the various disciplines. Finally, latter-day spokesmen pled for more concern and sympathy for the welfare of young children (Holt, 1964; Kozol, 1967; and Dennison, 1969).

Pressure on Schools

What is the effect of these disparate views of education on schools? Primarily, they create considerable pressure on schools for change of one kind or another. Such pressures on schools for change are almost constant. The very mood of our times is one of change. But change may be well planned and orderly or it may be poorly planned and disorderly. Examples of both approaches abound either in substance or in style.

Pleas or demands for change in education are not just contemporary phenomena. According to Van Til (1971), "the history of American education demonstrates that waves of criticism of the school curriculum invariably accompany tides of dissatisfaction with the existing social order." The shift to universal education from elitist programs in the eighteenth and nineteenth centuries, the rise of progressive education as a challenge to more traditional forms in the early twentieth century, and the demands for increased emphasis on science following Sputnik in 1957, are but examples.

Cremin (1961), with reference to an earlier period, described a variety of diverse forces affecting American education. Included among those who were demanding educational reforms of one kind or another were (1) businessmen and labor unions who were insisting that the schools assume the classical function of apprenticeship; (2) settlement workers and municipal workers who were urging instruction in hygiene, domestic science, manual arts, and child care; (3) various patriots who were calling for Americanization programs; and (4) agrarian publicists who were pressing for a new training that would encourage young people toward farming.

Appropriate responses to current demands will likely be even more difficult for schools. These demands come from a variety of sources and for a variety of reasons. These reasons include (1) economic consideration and "proof" of accomplishment highlighted by advocates of an accountability model, e.g., installation of Program Planning and Budgeting Systems and other systems for the design and evaluation of instructional programs (Abt, 1966; Kohn, 1969; and Novotney, 1969), (2) private industry entering the instructional field on a performance contract basis (Stucker, 1971), (3) new instructional theory which conceives of learning as a discovery process (Bruner, 1966), (4) spokesmen who claim the irrelevance of most existing instructional programs (Goodman, 1960; Holt, 1964; and Leonard, 1968), (5) advances in learning theory and the increased emphasis of the importance of learning principles in the design of instruction (Gagné, 1970; and Ausubel, 1968), and (6) more general pleas for the design of instructional programs based on objectives, but not limited to a specific system (Esbensen, 1968; and Popham, 1969).

To exacerbate the problem, there is not common agreement on what the central function of the school should be. While the adoption of new practices and procedures should take into account the purposes schools are intended to perform, this is no easy task. Katz and Kahn (1966), for example, depict schools as performing maintenance functions for society, i.e., preserving existing values of society. Similarly, Ziegler (1965) states "Educational institutions tend to mirror the political environment in which they find themselves and therefore do not, because of their very nature, contribute to political change." On the other side, Silberman (1968) asserts that schools should serve as a vehicle for effecting changes in society. Miller (1967) suggested a more moderate point of view by stating: "Education serves both as a leader and a follower of society, operating somewhere between the challenge of George Counts' Dare the School Build a New Social Order? (1932), and Henry Steele Commager's "schools reflect society" thesis (1950). Certainly, periods of rapid social change are accompanied by periods of educational change, and it is generally believed that successful change represented by the adoption of an innovation is dependent on strong community participation (Gittell and Hollander, 1968). However, even though community participation may be developed and it becomes clear that change of some sort is desired, people are frequently unclear or not in agreement with regard to desirable objectives.

Educators, then, are frequently caught between conflicting demands to which they must respond. Because of a general vulnerability to their environment, there has developed a variety of survival patterns ranging from outright resistance to all change and a solidifying of the status quo, to overly frequent adoption of any and all innovations

that appear in the educational marketplace.

Miller (1967) summarized this more contemporary situation as follows: "Factors such as the Cold War and the National Defense Education Act, the explosion of knowledge and the expansion of the knowledge industry, community pressures for greater efficiency fostered by the baby boom, building shortages and higher tax rates, and changing occupational patterns have caused great ferment in education." Add to the above the more recent youth movement with its accompanying criticisms of irrelevance, and one can feel some empathy for an institution (the school) on which so much important responsibility is placed and to which so many demands for change are made.

The critical response by schools, then, is in the selection of appropriate alternatives by which to satisfy the various constituents of education and help ensure programs that are appropriate to the learners. There is no dearth of alternatives from which schools may choose. There has been an almost bewildering number and variety of products to whet the educational appetite. Further, while schools at one time were accused of a general slowness in adopting innovations, Sieber (1968) suggests that because of the many trends pressing for adoption, the historical lag between invention and adoption has been substantially reduced. Wiles (1965) described the situation as "overhasty adoptions in a bandwagon or desperation attitude."

Internal Pressures

There is ample evidence that pressure both for and against change exists outside the school. Similar pro and con forces exist within the educational profession. Some authors, such as Barnett (1953), view

educators accepting of change in a rather negative light. He classified them as follows:

1. The Dissident - consistently refuse to identify themselves with some of the conventions of their group.
2. The Indifferent - are prepared to accept new ideas because they have not dedicated themselves irretrievably to a custom or ideal of their society.
3. The Disaffected - are at odds with their society as a result of such possible variables as marginal status, disillusionment, frustration, circumventions by enemies, generalized social anxiety, and guilt depression.
4. The Resentful - are susceptible to a suggestion of change because they have less to lose by accepting it, often nothing to lose.

Rogers (1962) suggests a more positive definition of innovators as "the first members of a social system to adopt new ideas," and characterizes them as follows:

1. Innovators generally are young.
2. Innovators have relatively high social status, in terms of amount of education, prestige ratings, and income.
3. Impersonal and cosmopolite sources of information are important to innovators.
4. Innovators are cosmopolite.
5. Innovators exert opinion leadership.
6. Innovators are likely to be viewed as deviants by their peers and by themselves.

One implication of these typologies is that efforts to effect change or gain acceptance of an innovation ought to be targeted at those individuals who possess these characteristics. However, the matter is not that simple even if such people could be identified. Successful adoption of an innovation is dependent on not only gaining willing listeners, but in securing support of the innovation by the administration (Gross, et. al., 1968). Further, school administrators frequently view the support of teacher staffs for a large scale innovation as essential to its success. For example, teacher acceptance of the curriculum organization, the theoretical base, and the role of teachers and students in the learning process of an innovation were viewed by school administrators as being critical to its acceptance (Jenks, 1975).

Although Pellegrin (1966) concludes that the major sources for educational change are external to the school (he cites the lay public, state departments of education, education faculties in colleges and universities, professional associations, United States Office of Education and other federal government agencies, textbook publishers, scientists, technical specialists, and other experts) there is considerable evidence that the school staff's views, modes of operation, and concerns about maintaining a degree of control over school operations, are the strongest force impinging on the question of successful vs. unsuccessful adoption.

In summary, a reading of the literature on the adoption of innovations suggests that whatever view one espouses concerning causes of successful and unsuccessful adoptions, support for that view can be found in the literature. There is ample evidence for the existence of

pressure on schools both in the past and present. Further, the sources of pressure from outside the school as well as the suggested directions for change are multi-faceted and diffuse. Probably the primary reason for such differences is the ambiguity or lack of agreement from constituents over the central function of schools. Such discrepancies create competing forces for which satisfactory reactions by schools must also be diverse.

There are also pressures from within the school for both change and preservation of the status quo, partly because school staffs also have opinions concerning the desirable shape of education. Their opinions are formed both on philosophical and practical grounds. They have, in addition to values concerning the way education should proceed, vested and understandable interest in developing and maintaining some degree of control over their own roles as educators. Thus, pressures for change come both from sources external and internal to the school. And while decision-makers may decide to respond in a certain way, it is the staff, more specifically the teaching staff, who will be the primary causes of success or failure of any innovation in which they become directly involved.

Gaining support from the staff for a proposed adoption is, then, a critical phase in the adoption/implementation process. It is suggested in this study, that one basis for gaining such support is the availability of information for staff concerning the theoretical basis of the proposed innovation. Usually, such information is not considered as a precursor of adoption on any but very general levels. But, staying at the level of a few very general, descriptive phrases, such as humanistic, individualized, or relevant is satisfactory only as long as the discussion

of the innovation is loose. As Goodlad (1971) asserts, "We must raise the level of the discipline to the truly significant questions of educational ends, and we must be as diligent as our lay citizens in laying bare instructional deficiencies in the pursuit of these ends."

What are the implications of these generally disparate educational views for career education? First of all, those that see education as a transmitter of culture would probably hold a dim view of career education. The second viewpoint, that of social reconstruction, and its emphasis on the importance of education responding to social needs, seems reasonably consistent with the purposes of career education. The third viewpoint, which centers on the full development of the individual, would likely find many elements to their liking--particularly if career education, indeed, focuses on the development of the individual to function in the world of work and career is defined as one's progress through life. In the next section, career education is defined and the problems it was intended to address are presented.

Definitions and Problems Addressed by Career Education

There is probably no single definition of career education that has achieved wide acceptance; however, there are recurring themes that appear in discussions of the topic. Marland (1972) views career education as essentially an instructional strategy, aimed at improving educational outcomes by relating all teaching and learning activities to the concept of career education. Swanson (1971), suggested the following definition: "Career Education is a movement for reform of American education resting upon a positive philosophical commitment to the values of work-oriented society."

A synthesis of many descriptions of career education that evolved from the U. S. Office of Education, as well as numerous other authorities was developed by Herr (1972). He states:

> In summary, the descriptions of career education...suggest that the term can mean, in relationship to different contexts and purposes, at least the following:
>
> 1. An effort to diminish the separateness of academic and vocational education.
>
> 2. An area of concern which has some operational implications for every educational level or grade from kindergarten through graduate school.
>
> 3. A process of insuring that every person exiting from the formal educational structure has job employability skills of some type.
>
> 4. A direct response to the importance of facilitating individual choice-making so that occupational preparation and the acquisition of basic academic skills can be coordinated with developing individual preference.
>
> 5. A way of increasing the relevance or meaningfulness of education for greater numbers of students than is currently true.
>
> 6. A design to make education an open system in that school leavers, school dropouts, adults can reaffiliate with it when their personal circumstances or job requirements make this feasible.
>
> 7. A structure whose desired outcomes necessitate cooperation among all elements of education as well as among the school, industry and community.
>
> 8. An enterprise requiring new technologies and materials of education (i.e., individualized programming, simulations).
>
> 9. A form of education for all students.

Another approach to defining Career Education is to distinguish it from vocational education and general education. Such an approach is less than satisfactory because of the confluence of so many aspects of an individual's background and the various educational experiences

which affect career choice and progression. However, some differences can be noted. For example, Rieder (1974), suggests the following distinctions:

> Career education includes vocational/technical education in that skill training and preparation for a specific job or occupation play a significant role for many youth and adults who have decided on an occupation such as carpenter, medical technician or engineer and want training to enter it.
>
> Career education is more than vocational/technical education: the difference is between training for a single job or occupation and a concern for how education affects the sum total of one's life work, the development of which represents many choices throughout the individual's life time, and is influenced by many factors in addition to technical skills.
>
> At the same time, career education as we see it is not synonymous with all education. Career education focuses on the interface between the individual and the economic sector, and is primarily concerned with education as it relates to career development. Education more broadly is concerned with the development of critical thinking, stimulation of the love of learning, transmission of diverse cultural heritages, and the full participation of individuals in their society.*

Problems Addressed. Career education is but one effort to reorganize and revitalize America's high schools. While Conant's report on the comprehensive high school (1959) concluded that "no radical alteration in the basic pattern of American education is necessary to improve our public high school," other studies were calling for reforms. The National Commission on the Reform of Secondary Education (1973) urged a wide variety of alternatives leading to completion of requirements for graduation be made available to all students.

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* This latter distinction between career education and "all education" is not readily conceded by all career education spokesmen.

The report further states, "...individual students must be encouraged to assume major responsibility for the determination of their educational goals, the development of the learning activities needed to achieve these goals, and the appraisal of their progress." The Report of the Panel on Youth of the President's Science Advisory Committee, "Youth: Transition and Adulthood" (Coleman, 1973), questions the school as "a complete environment giving all the necessary opportunities for becoming adult," and further that existing institutional settings are inadequate and that new "alternative environments for the transition to adulthood" should be created. Finally, the National Association of Secondary School Principals report, American Youth in the Mid-Seventies, suggests that "formal schooling is doing nothing for a large part of the young adult population 15 through 20--they've dropped out--and it is not doing very well for another large group, those who stay on in school, graduate, but get little from it."

All the reports are critical of American high schools and in different ways suggest that alternative institutions or programs and an emphasis on becoming a "responsible worker" should be a principal focus to aid the adolescence-to-adulthood transition.

Career Education emerged as a potential priority research and development thrust in late 1970 at the Office of Education. Gideonse (1971) summarized the results of a review of problems and causes related to the issue of career education. The problem identified by the group was unemployability in America. It was stated as follows:

> All individuals in American society desiring or needing employment should be able to secure and pursue it in a manner satisfactory to them and to society. The problem is that identifiable groups and individuals in our society, to

> different degrees, at different times, and in different ways do not participate in the realization of this goal. Significant social, economic, and personal cost results.

Causes of the problem (Gideonse, 1971) were identified through group discussions as:

1. Poor self-concept
2. Lack of marketable skill
3. Poor elementary problem-solving skills
4. Poor job market information
5. Poor motivation
6. Lack of credentials
7. No market for available skills
8. Discrimination
9. Value conflict

Similarly, Rieder (1974) (Director of the NIE Education and Work Program) identified the principal problem(s) being addressed as follows:

> Most Americans believe that education and work are related. Both Gallup polls and a recent NIE-sponsored survey show that Americans place preparation for work, economic success, and better jobs above a variety of other reasons why people should go to school.
>
> While public expectations regarding the contribution of schooling to success in life are high, there is considerable evidence that young people leaving school are not well prepared for the adult world.
>
> Supporters of career education have noted that each year about 2.5 million youth leave school without a high school diploma, as general curriculum graduates or as college dropouts. On the basis of somewhat diverse evidence, it is believed that many of these youth (and a large proportion of the graduates) have left school without the skills required to obtain employment or to continue their education, a sense of where their interests and competencies lie, adequate information about job availability and requirements, or much understanding of what it is like to have adult responsibilities.

> Understandably, youth and their parents are concerned that educational reforms give as much attention to preparation for career development as schools traditionally have given to preparation for professional and higher education. Their concern is echoed in reports of national commissions which find that young people experience increasing difficulty in making the transition between full-time school and full-time work, between youth and adulthood. The reasons for these apparent difficulties are uncertain and may be related more to the availability and nature of employment opportunities for young people than to schooling. The Commissions, while acknowledging these factors, believe the difficulties are due in large part to the segregation of youth from meaningful adult life and the decline of the apprenticeship-into-life currently offered mostly in farm and small entrepeneur families. With the best of intentions, the Commissions conclude, youth have been excluded from the primary labor market, child-rearing and family responsibilities, and from other aspects of adult life as education has become prolonged and separate from home, community and work-place.

Developmental History of Career Education. Based on the preceding analysis by Office of Education staff, Career Education was initiated in 1971 as a programmatic activity with no less than the stated aspirations of reforming secondary education. But the nature of the reform was not specified. A decision was made to establish four independently developed experimental models. These four models of career education were identified as (a) school-based, (b) employer-based (later renamed experience-based), (c) home/community-based, and (d) rural/residential-based.

The models had two purposes (Raizen, 1973), to investigate and test several plausible alternative hypotheses regarding the delivery of career education, and to design and develop prototype career education programs congruent with each of the various hypotheses.

Although the four models were launched as a research and development effort, financial support was quickly redirected at activities designed to institute reforms, to engage in program development at once. Thus, much analytic research was ignored in favor of development. Brief statements of purposes for each model will be given below before focusing on Model II or, as it is now known, "Experience-Based Career Education."

a. School Based. Model I assumes that:

- A major aspect of the problem is the failure of the public school system to prepare adequately a large percentage of students for self-sufficiency and entry into adult life.
- The established public school system can be reformed to improve significantly this aspect of the problem.
- The critical area of the public school's need for reform is the curriculum.

Model I, then, is a test of whether the infusion model of curriculum change is an effective and viable strategy for the comprehensive reform deemed necessary (Raizen, 1973).

b. Employer-Based.* Model II assumed that (Raizen, 1973):

- The education provided by the public schools is irrelevant for a significant percentage of youths in that the secondary school system fails to prepare these and other students for self-sufficiency and adulthood.

* Employer-Based was changed to Experience-Based in response to various findings and experiences of Model II contractors.

- For many students the public school system is inherently incapable of solving the problem or even of contributing significantly to the solution. It appears that relevant learning for many adolescents must be experiential, in natural work environments. Moreover, negotiating mutually satisfactory matching between youths and employment opportunities is more complex today than merely training youth in appropriate occupational skills and attitudes; it requires mechanisms for directly linking students with the employer community during the training period.

The Model II projects are attempts to design an alternative to the public secondary school. The model hypothesized that there are natural incentives that will induce employers to provide comprehensive work-centered education for adolescents.*

c. Home-Based. Model III deals with the problem of unemployed adults and adolescents who lack an institutional base in society (Raizen, 1973). Unlike the other models, this one does not attempt to teach skills and attitudes directly. Rather, the project is designed to apply mass communication media to the problems of assessing the career interests of selected home-based populations and of informing individuals about work and training opportunities already existing in the community. Several

* This hypothesis has not been substantiated; some evidence to the contrary has been obtained by the Model II contractors.

assumptions are:

- A significant percentage of adults who are not students, employed, or actively seeking improved employment feel unsatisfied with their present situation and need career assistance.
- Job opportunities and a variety of career training resources already exist for adults in the community.
- Home-based or marginally employed individuals have specific career-related problems. Of these, the problems most amenable to change are insufficient guidance and information regarding the existence of these resources.
- There is a lack of mechanisms to link effectively the career needs of home-based people with the existing educational and career opportunities of the community.
- The immediate employer community is the most appropriate social mechanism through which to prepare many adolescents for their careers.

d. Residential-Based. Model IV focuses on the chronically poor rural family (Raizen, 1973). It is a "total" intervention in that it attempts to influence all significant activities of the family, not only education-related activities. Special attention is paid to the adult members of the family, with heavy emphasis on skill training. The assumptions underlying this project are:

- Formal school intervention alone is not sufficiently powerful to assist chronically poor families.

- The problems of many poor families go beyond the lack of specific job skills for an adult member. They also include (1) lack of household management skills, (2) lack of health and nutrition knowledge, and (3) lack of child care skills. Extensive family counseling is also needed.

The project started with the hypothesis that poor families can best be helped by moving them away from their accustomed environment and into a controlled residential environment.

Developmental History of Model II (Employer-Based Career Education). The employer-based model was perhaps the most dramatic alternative of the four. It shifts the learning process from the schoolroom to actual work settings, and involves employers in the responsibility for planning and operating the program. Far West Laboratory for Educational Research and Development, in cooperation with the Northwest Regional Education Laboratory, was asked to examine the feasibility of this version of Career Education.

The purpose of the feasibility study was to provide a comprehensive systems analysis of the major parameters relevant to developing an EBCE model. The aim was to assist the Office of Education in preparing Requests for Proposals, proposal writers, and successful bidders. This initial work produced an initial systems analysis (Banathy and Ward, 1970) and twenty-nine analytic studies conducted under contract to the Far West Laboratory (Johnson, 1973).

This phase of the work was directed at exploring various facets impinging on an Employer-Based Career Education model and not at designing a specific form that EBCE might take. The second phase began

when the U. S. Office of Education suggested that the task might be simplified for eventual EBCE implementers by moving into "advanced design," i.e., not merely examining possible configurations that might be incorporated in EBCE, but designing features that would be put into practice. Many of the feasibility studies were abandoned at this point with only a week or two of effort having been expended.

A third shift in focus occurred when the Request for Proposal strategy was abandoned and four research and development laboratories were awarded contracts to design and develop an EBCE model.*

While the initial systems analysis study contributed to the design of EBCE, it was one of the feasibility studies which had perhaps the greatest impact on eventual development. The analysis of employer's reactions to the proposed design, as well as early experiences of the project staffs, revealed that more than half the employers contacted were skeptical or opposed to the idea of employer-based career education. Reasons such as the following were given:

1. Business and industry are not equipped to educate.
2. EBCE would cause a rift between business and education.
3. Too many young people are undisciplined and uninterested.
   Its too early for them to choose a field.
4. The program would be too costly.
5. There are already too many programs of this kind.
6. Employer's training centers are already "doing the job."
7. Why should employers do what educators are paid to do?

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* Appalachia Educational Laboratory, Far West Laboratory for Educational Research and Development, Northwest Regional Education Laboratory, and Research for Better Schools, Inc.

8. Employers are in business to make a profit. EBCE offers no economic advantages.
9. Coordination with labor unions will be a problem.

While employers were less than enchanted with the notion of being institutionally responsible for educating adolescents, experience has shown that many are interested and willing to become involved by sharing their knowledge and skills with adolescents. Thus, Model II (Employer-Based Career Education) was renamed as Experience-Based Career Education. It was more than a name change, however. The project staff, while willing to try the employer-based idea, confirmed (not to their surprise) that close cooperation with the secondary public school was necessary. More to the point, many secondary schools, once they became acquainted with the idea, became enthusiastic supporters (Jenks, 1975).

At present, all four EBCE projects are working closely with the public schools with regard to further development, testing, and dissemination. What began as an alternative educational program to the public high school has now evolved into models from which the high school may adopt as an alternative way of educating some of their students or as techniques and procedures to be infused with existing programs. The Far West Laboratory's Experience-Based Career Education (FWL-EBCE). The FWL, in response to directions from the Office of Education, shifted its emphasis from feasibility studies and analytic work to the installation of a pilot program in summer of 1972. In the fall of 1972, some 15 students were enrolled in the program with 15 more added during the spring semester. The first year was truly experimental in that development of procedures had not been completed. By the second operating year (1973-74), the student enrollment was increased to 55. Prototype

materials had been developed for use by staff and students so that it was possible to conduct an evaluation of the process and outcomes (Spotts, et al, 1974). Revisions were periodically made in the documents and handbooks and by the 1974-75 school year, approximately 100 students were enrolled. It had been determined that evaluation of the program's effects and processes would be conducted by an agency external to the research and development laboratories. At the present time the FWL-EBCE school has completed a third year of operation and is undergoing a shift from development at the pilot site to field testing and implementation of the model at other school district sites.

Chapter Summary

This chapter has attempted to describe some of the conditions leading to a decision to undertake the development of Experience-Based Career Education. It has also presented a brief description of the pressures on schools concerning adoption of new programs and practices such as EBCE, and provided a short account of the developmental history of the model. It is intended to be a valuable alternative form of education. Whether this intent is realized will depend partly on its acceptance by schools. Part of its value and impact may rest with the model as part of a curriculum reform movement (e.g., individualization, personalized learning, experiential learning). How this might be is taken up in the next chapter.

CHAPTER III

DESCRIPTION OF EBCE

Introduction

Chapter IV sets the task for this study: To examine EBCE as a theory of instruction. To do so requires two preliminary steps: (1) analysis of the model in such a way that basic assumptions can be derived, and (2) the study of these assumptions in terms of the existing theoretical and empirical data. The focus of this chapter is on step 1.

The Characteristics of EBCE*

Experience-Based Career Education was designed as an alternative form of secondary education that attempts to link learning and life. It takes students outside the school walls into the community and workplace of adults. Using information related to each student's academic and career interests, his or her educational needs for graduation and for future academic plans, a teacher (learning coordinator in the FWL model) and each student develop a plan for learning. The student acts on the plan by selecting learning resources and activities which will enable him to attain agreed-upon objectives. The primary learning resources are working adults in the community who are willing to share

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* The material appearing in Section B was drawn from handbooks and manuals designed for potential adopters of the FWL-EBCE model. These documents were developed under the supervision of Karen Chatham and edited by James N. Johnson. See the Appendix A, p. 168, for a complete listing of these documents.

their time and talents with young people to help them meet their learning needs. Secondary resources include programmed instructional materials, tutors, basic skills instructors, and regularly-scheduled classes if appropriate resources in the community are not available. A key emphasis is on organizing learning activities in such a way that the development of academic knowledge and skills is blended or integrated with career explorations.

Experience-Based Career Education takes as its premise that education is a planned and guided process by which adolescents move toward adulthood. It is an organized and directed series of events that help students decide who they are, who they want to be, what they want to do, what they want to know, learn and experience. Education provides a means of grappling with these questions by arming young people with ideas and skills and by encouraging them to experience both the problems and the richness of the real world. Therefore, using the entire community as a learning resource, EBCE seeks to provide students with a secondary education in such a way that they acquire the skills and knowledge necessary to choose, enter, advance in, and find satisfaction in an adult role.

This alternative approach rests on the following key assumptions. Education must (1) be experience-based, (2) be career-oriented, (3) be student-centered, and (4) expose students to the ideas, skills, and personalities of working adults.

Experience-Based

The "community as school" provides a functional context that enhances learning, in terms of both motivation and substance, by

enabling students to:

1. Improve and perceive the relevance of basic skills by using them to solve real (not simulated) problems in everyday life (not artificial classroom situations), and by being challenged to communicate at an adult level.

2. Translate textbook concepts, abstractions, and principles into actual experience and test them through practical application as they are in fact employed in real-life tasks.

3. Develop a sense of responsibility and self-reliance by participating in vital daily activities that call for solving problems, making decisions, and perceiving and accepting the consequences of one's actions.

4. Acquire firsthand information about what people actually do in their daily work, how they feel about what they do, and what kinds of knowledge and skills are needed to enter and function effectively in the adult world.

5. Integrate learning in ways not possible in the traditional classroom. EBCE exploits the fact that human experience does not conveniently divide itself into airtight compartments called skills or subject areas. It enables a student to develop his abilities in several areas--academic, occupational, social, and personal--as these skills and knowledge are applied interactively in actual experience.

Career-Oriented

Because occupational choices play a powerful role in shaping our sense of identity, self-esteem, and lifestyle, a focus on career preparation should be an integral part of a person's education. Since career is defined broadly as one's progress through life and not as a particular job, the EBCE notion of career preparation means providing students with a cumulative series of planned personalized learning experiences in a wide variety of life/work settings to:

1. Help students know themselves better by seeing themselves, their capabilities, and their reactions in a variety of situations; and develop realistic goals based on accurate appraisals of their interests, abilities, and needs.

2. Give them a broad understanding of the world of work --its rewards and shortcomings, what they can expect from it, and what it will require of them.

3. Develop the decision-making skills to put the first two together.

Student-Centered

The student acts as planner, decision-maker, and self-evaluator within the general framework of EBCE goals and procedures. This personalized, learner-directed approach enhances learning in the following ways:

1. It accommodates human uniqueness by allowing each student,to the extent possible, to pursue his particular needs and interests, at his own pace, and according to learning methods best suited to his tastes and capabilities.

2. It increases motivation to learn by allowing the student to pursue genuine interests and concerns, to answer questions, and to solve problems he perceives as relevant.

3. It allows the student to plan and carry out his own learning program; requires the student to make his own decisions, act on them, and face the consequences of those decisions; and increases self-reliance and a sense of initiative. The increasing assumption of responsibility for his own learning and the perception of himself as being treated as an adult foster confidence, both in himself and in the process of learning.

Adult Roles

The task of adults (staff as well as volunteer resource persons in the community) is to provide a supportive environment and to guide and assist students in planning, achieving, and evaluating accomplishments. The role of adults is that of helping students become adults: helping them learn how to learn, think for themselves, make decisions, solve problems, work with others, keep their commitments, and seek guidance and assistance when they need it. To facilitate student learning, to accommodate individual student needs, and to help young people make the

transition to adulthood, EBCE:

1. Involves a variety of competent adults (resource persons), with diverse backgrounds and expertise, as colleagues in the educational process, serving as models and sharing their particular expertise, skills, and knowledge of the world with students.

2. Redefines the role of school staff, who become primarily learning coordinators and facilitators rather than teachers of conventional subjects.

Goals of FWL-EBCE

The broad goal of the FWS Experience-Based Career Education program is to produce graduates who are equipped to function in the working world of adults. Far West School graduates should be:

1. "Turned on" to learning: work at it, view every situation and every human contact as an opportunity to learn something.

2. Planful: not only about their long-range futures, but about what they want to do and achieve each week.

3. Self-reliant: able to set their own goals; plan activities; manage their time and other resources; work independently; recognize when they need help and seek it; evaluate their own behavior and learn from it; and accept the consequences of their own decisions and actions.

4. Capable of interacting with adults as equals: know what is expected of them as adults; able to communicate on an adult level; able to make and keep realistic commitments to others and to have reasonable expectations of others.

5. Capable of making realistic and satisfying career choices: more informed about career opinions and requirements and more aware of their own values, needs, goals, strengths, and limitations.

6. Independent learners: able to identify what is worth learning; identify and use effective sources and methods of acquiring information; and analyze, evaluate, and incorporate new information into their own knowledge and experience base.

Application of EBCE to Glaser's Model

This section presents a description of EBCE in terms of Glaser's teaching model. Each of his four components has been expanded and in a sense defined for this study by the inclusion of various elements pertaining to each component. It should be noted that in describing EBCE in terms of various conditions and phenomena, some repetition is to be expected. This is because EBCE model components are strongly interactive. Selection of elements was based partly on a format proposed by DeCecco (1968) and partly on unique characteristics of EBCE. The components of Glaser's model, the various elements under each, and descriptive statements about EBCE for the elements follow:

Instructional Objectives

Source and content of objectives.--EBCE specifies (1) broad goals, (2) sets of fairly general core student objectives in the areas of career development, basic skills, and life skills, and (3) elective student objectives which are largely subject-matter oriented (e.g., science, math). Whereas student learning activities must be directed at fulfilling the core objectives, the curricular areas are elective, depending on the student's interests and needs to meet graduation requirements. Thus, students are able to select among curricular areas and develop their own instructional objectives. In addition, the core objectives are still broad enough to permit considerable latitude on the part of students. While general objective content is provided to students, the conditions under which

performance will occur and the standards for successful accomplishment are left primarily to the student and his learning coordinator (LC).

Sequence of objectives.--EBCE does not pre-sequence instructional objectives. Rather, the sequence is generated by students and may be modified by the student based on experience and further planning with the learning coordinator. For example, students may find that the pursuit of a particular interest (a project with outcome statements) is too difficult because certain prerequisites have not been met. Re-planning with the learning coordinator then occurs.

Level of specification.--Core objectives as set forth by the EBCE program are seen as end-of-program outcomes and thus are quite general. Students, however, are required to develop project objectives (the model project length is one term) which describe the performance outcomes that will demonstrate progress toward core objectives. Thus, objectives upon which student work is evaluated are not short-range, day to day, but usually of several months duration.

Entering Behavior

Readiness for learning tasks.--The learner is viewed by the learning coordinator as the starting point for planning and learning activities. EBCE students and their LCs develop projects complete with objectives, learning activities, and an outcome (product) to demonstrate achievement. The projects are based primarily on the student's perceived needs and interests. Learning Coordinators

Learning Coordinators may recommend modifications or prerequisite activities if they have reason to believe that the student has set a course beyond available capabilities. Most often, however, the student is expected to be the decision-maker who will modify his own plans based on experience. For basic skills, an initial assessment of needs is made based on observations, discussions with students, writing samples, etc. Although there is no formal initial assessment made for core objectives areas, student performances are frequently rated by LCs during project planning and completion.

Selection of strategies for individual learning styles.--In so far as possible, learning coordinators are responsive to student preferences concerning the approach to and handling of a learning task. Only minimal effort is expended by LCs to identify individual learning styles as a means of helping students select appropriate instructional strategies prior to engaging the student with project planning. During planning and carrying out of projects, the LC attempts to identify student strengths and preferences to help the student select effective strategies.

Motivation.--Efforts toward motivating students may be discussed in terms of the behavior of learning coordinators, the learner's planning and conduct of projects, and the procedures related to handling of completed projects. First, the learning coordinator's intent is to provide a supportive environment, to assist and guide the student's planning and learning activities, and to jointly, with students, evaluate the outcomes. The LC role is that of a helper, facilitator, stimulator, and resource

who supports the learner's inquiries and investigations into selected problems or learning areas. Second, learners take active roles in planning, conducting, and evaluating their own individually tailored learning program. Students are essentially their own taskmasters in terms of use of time, level of aspiration, and meeting expectancies that have been specified. But students are made aware of graduation requirements and that credit will be assigned on the basis of performance and work completed. Thus, any student anxiety of work completion is primarily self-induced and a function of long-range plans and not day to day or week to week as a result of learning coordinator admonitions or sanctions. The student, then, selects those areas for study (within a general EBCE framework) in which he is either curious or deeply interested, participates actively in developing a learning plan (both long-range and short-range) which is responsive to both interests and needs (e.g., graduation requirements), commits himself to its completion, and revises when indicated.

Third, upon work completion, students are again actively involved in evaluation. They are rewarded through credit assignment, by the availability of the LC who supports their efforts, and by a process which stresses individual initiative, accomplishment, and self-reliance. Negative reinforcement for a poor academic showing is handled primarily through the credit assignment procedure. In other words, the consequences of a less than satisfactory project(s) (not completed or poorly completed) are known by the student in advance.

Instructional Design and Procedures

Curriculum.--The student/learning coordinator generated project is the basic plan for learning in the FWL-EBCE model. The project consists of a set of objectives, proposed learning activities to attain objectives, selected community resources where much of the learning activities are performed, and specifications of intended outcomes (products of some type) which will demonstrate attainment of the objectives. While the project can be modified, it serves as a contractual commitment among the student, the learning coordinator, and involved resource people in the community. It guides work performed by the student, sets the general scope and sequence of activities, assists the learning coordinator to monitor student progress, and specifies criteria by which learning outcomes can be evaluated by the LC and student.

A major source of information for project planning in the FWL model is the project planning package. Packages have been developed in various subject matter/career areas (life sciences, commerce, physical sciences, communications and media, and social sciences). A learning package is not curriculum, per se, but rather a structure within which individualized curriculum can be planned and carried out in the form of projects. The package groups together those resource persons, resource organizations, and other community resources that provide learning activities serving a common set of student outcomes (package goals) related to a combined subject and career area. Thus the package is a tool to facilitate experience-based,

personalized learning. The package provides structure to the planning process by helping organize areas of inquiry according to subject, disciplines, and careers; suggests points of entry in terms of issues, interests, questions; and offers examples of operational ways to pursue interests and concerns. The package has other purposes as well: to help reinforce the individualized planning process; to assist the learning coordinator's task of individualizing learning; to help students satisfy both EBCE and local public school requirements; and to provide yardsticks for assigning credit based on student performance.

The curriculum of the FWL-EBCE model then, consists primarily of the outcomes of planning between a learning coordinator and student. Beginning with student interests and needs and making use of the package structure, individualized projects are developed. The particular scope and sequence of a given project are primarily dependent on the individual student's perceptions of appropriateness, and on available resources, but also by information about the student related to graduation requirements, basic skills, and educational and occupational interests and goals. In addition, supplementary curriculum is seen as an important aspect of available learning opportunities, e.g., tutorials, programmed learning materials, basic skills instruction, and regular classroom courses.

Teacher role.--Teaching, in the context of the EBCE model, comprises a set of functions performed by learning coordinators

as well as by involved resource persons (RPs) in the community. The major task of the adult is to provide a supportive environment and to guide and assist students in planning, achieving, and evaluating accomplishments--to help students become adults: help them to learn, think for themselves, make decisions, solve problems, work with others, keep their commitments, and seek guidance and assistance when they need it. LCs are ordinarily assigned 25-30 students and are responsible for their educational progress.

The LC is described as that staff member having the most important influence on the student's development. It is through the LC that a supportive learning environment is established and shaped. This learning environment is the key through which the goals of EBCE are achieved and self-evaluation through decision-making is seen as a process by which this achievement is enhanced.

Several ideas, basic to EBCE, further describe the role of the LC. First, the LC must view the student's interests, abilities, and aspirations--as the starting point. It is the student's needs which are to be met and the student must learn to ask the questions and find (with staff help) the resources for answering them.

Second, the LC is seen as a helper, facilitator, stimulator, and resource. Promoting inquiry, investigation, and using questions as a mode of discourse are emphasized along with such relational qualities as listening, understanding, empathizing, responding to expressed needs, and sharing of

self. But, the LC must also monitor student progress in order to ensure that learning activities are taking place, that projects are being completed satisfactorily, and provide feedback to the student regarding progress.

Third, the LC tries to become a participant who engages with the learner in the process of learning and discovery. To teach does not mean having all the answers or communicating knowledge but rather knowing how to find out, how to learn, how to ask questions, and engaging in this process with students.

Further, the LC attempts to be non-judgmental toward student's ideas and values; to create an environment where students are free to contribute ideas and questions.

Student role.--The student is the primary planner, decision-maker, performer, and evaluator. Much responsibility is placed on students in that they must actively participate with learning coordinators to identify interests and needs and engage in long-range planning. Long-range planning (albeit tentative) results in a broad view of the student's entire educational program as well as some preliminary notions of career goals. Once long-range planning has been accomplished, the student and LC conduct short-range planning concerned with goals and objectives for perhaps a semester of work that encompasses both the student's needs and interests, and also graduation requirements. From the short-range plan, students begin to develop individual projects which correspond with their plans

and which lay out learning activities and products, e.g., reports, which are physical evidence of satisfactory project completion.

To accomplish projects, students make use of resource persons in the community as primary learning resources. In addition, and in order to fulfill short-term plans, students may identify and become involved in supplementary learning activities such as community college classes, tutoring, or programmed materials. Finally, they are heavily involved in evaluation of their projects to determine accomplishments, credit assignment, and any revisions in short-term plans that seem appropriate.

In summary, students are actively involved in the planning and conduct of their own learning designs. They are expected to become increasingly more self-directed and self-sustaining in their education.

Primary types of learning and associated methods.--Methods used in student learning are diverse, usually selected by the student, and usually not dependent or pre-determined on the basis of the type of learning to be addressed. Students engage in developing and applying basic skills (oral, writing, reading, quantitative), life skills (interpersonal, problem-solving, decision-making, and inquiry skills), career development knowledge and skills, as well as a number of elective subject-matter areas.

For skills development, various techniques are used such as diagnosis of the learner's status prior to instruction and

selection of materials and procedures that correspond as well as possible with assessed student need and content interest area. With basic skills instruction such conditions as practice, and providing knowledge on student responses (via a skills specialist or feedback built into programmed materials) are present. In addition, students are encouraged to demonstrate acquired skills in their career exploration projects as a means of demonstrating generalizability of learning.

Student project outcomes deal with concepts, principles, and problem-solving, but also with skill areas; e.g., communication skills and math skills. While expected performance related to the acquisition of these learnings are prespecified, little effort is spent in identifying "prerequisite" learnings that might affect the extent or efficiency with which students learn the new material. Such a judgment is reserved for the student and LC during project planning or after the project is underway. It is assumed, therefore, that if there are important pre-learnings necessary, the student and LC will detect their omission and replan, based on demonstrated need. Because project outcomes may address almost any area of learning, it is not feasible to prespecify prerequisite learnings for student project outcomes.

Perhaps the method which is closest to the EBCE approach and which has received considerable study is that referred to as "discovery learning." According to Kersh and Wittrock (1963) the chief characteristic is the amount of guidance

the teacher provides. Wittrock (1962) classified the amount of guidance a teacher may provide in problem-solving as follows: (1) the teacher gives the principle and the problem solution--an example of expository teaching; (2) the teacher may give the principle that applies but not the problem solution; (3) the teacher may not give the principle but give the problem solution; or (4) the teacher may give neither the principle that applies nor the solution to the problem. The first could be termed guided learning, the second and third as guided discovery, and the fourth as unguided discovery. The primary approach used in EBCE probably lies between the second and third with the decision of which to use based on the individual student's willingness and ability to proceed more on his own. Because student projects must address package goals, there is always some guidance present. Some type (1) learning occurs when students receive instruction in basic skills.

Student Grouping.-- Students work primarily by themselves, but may choose to engage with other students in a group project while still being held accountable for their own contracted product. In addition, students attend project seminars organized around a package study area. The student population may include grades 10-12 and there is no effort to set up either age or ability level groups. Further, the content of projects is non-graded in that subject matter is not reserved for particular classifications of students. LCs

meet with groups of their own students usually twice a week to share information and experiences, critique projects, discuss problems, and to learn and apply group and interpersonal skills.

Instructional Context.--The primary context for the learning process is the community. Planned interactions between the student and various resource persons, who have volunteered to share their time and talents to assist students to reach project objectives (and may be involved in revising and evaluating them), may comprise up to 40 per cent of the students' time. The association between the RP and student is voluntary on both sides. Its scope, terms, objectives, and duration are negotiable, depending on the resource person's availability and the student's educational needs and interest. Learning activities occur primarily at the RP's place of employment and are usually related to his or her occupation. Ideally, the RP offers the student a chance to develop and apply communications, problem-solving, and social skills, and also learn about the career and related subjects and issues. RPs frequently provide students with opportunities to develop specific technical skills through hands-on experiences in actual or simulated work tasks.

The RP may or may not be associated with a Resource Organization (RO) (a bank, industry, laboratory, department store, etc.) that opens most or all of its operations to students. Activities at these larger sites typically include pre-planned group briefings, tours, observations, and

discussions with individual employees. Resource Organizations give students broad exposure to a total organization: the nature of the business, its relationship to the community, the kinds of jobs performed there, how particular careers interlock, the working conditions and environment, educational prerequisites for job entry and advancement, and projected availability of opportunities in the field. Students may also make use of various community resources such as museums, libraries, aquariums, parks, courts, city councils, etc., and the people within them.

While the intent of student/resource person time is to blend (or integrate) career exploration and academic learning, at times supplementary activities are necessary. Supplementary curriculum may consist of tutorials, workshops, programmed instructional materials, or even enrollment in a community college class. With the exception of the latter, supplementary activities normally take place at the student's home base (the school or resource center) in conjunction with the learning coordinator or other staff person.

Thus, the instructional process occurs both at the center or school site and in the community with selected resource persons, resource organizations or community resources. Regardless of the context, the purposes and activities are focused on the student's project plans and their successful completion.

Performance Assessment

Methods.--For assessment of student learning in basic skills, methods include standardized tests, judgments of skill specialists and tutors, and when applicable, demonstration of improvements in project work. Checklists of basic skill areas where a student needs improvement is used to record progress.

For assessment of student projects, the completed product is the primary outcome for assessment.* It is examined for consistency with the project plan and whether specified indicators, objectives, or goals have been met. Product indicators, in addition to objectives, include such features as:

(1) The cognitive levels represented in the contracted product.

(2) The kinds of learning to occur (e.g., facts, major concepts, principles, understanding of significant problems, level of difficulty).

(3) Demonstration of growth in career development, life skills, and basic skills.

(4) The relationship between project goals and long-range plans.

(5) The quality of planning.

(6) The existence of project originality.

In addition, the student's performance during project work, i.e., enabling tasks, is evaluated.

Credit Assignment.--Each completed project is awarded a number

* The LC engages in progress monitoring to ensure that the student is making progress toward project completion, to provide feedback and reinforcement to the student, and to help him to revise plans if indicated.

of credits toward a secondary school graduation diploma. In order for a project to receive sufficient credit to correspond with one semester's work in one course (5 credits), achievement of the following criteria must be demonstrated:

(1) at least one method of acquiring information;

(2) at least one method of communicating information;

(3) the use of problem-solving;

(4) the acquisition of information about two jobs and the assessment of these jobs against the student's long-range goals, interests, values, and one or more of the following depending on the particular planning package in use:

(5) inquiring into three concepts or

(6) study of a major problem or

(7) comparison of fields or disciplines or

(8) design and conduct of an experiment or

(9) study of an organism or institution or

(10) development of techniques or skills or

(11) development of interpersonal skills.

The assessment is accomplished by the student and the LC. After reaching agreement on the amount of credit to be assigned to the completed project, the LC and student fill out a project summary report requesting the agreed-upon credit in the appropriate subject matter area. This is forwarded, with appropriate supporting evidence, to the school director or principal for approval. In the event of question or disagreement, a committee which includes the LC, student, principal, and skill specialist is convened to arbitrate the matter. Credit is also assigned to students for supplementary learning activities

(e.g., tutorials, classes taken, etc.) when they are not part of the project.

Assessment of student work, then primarily consists of subjective and shared judgments of the LC and student based on prespecified outcome criteria.

Major Assumptions of the EBCE Model

This section presents sets of assumptions about the FWL-EBCE model that were derived from the preceding descriptive material and categorized generally according to Glaser's teaching model and further classified according to sets of appropriate elements. The derivation of assumptions was a complex task. There is the difficulty associated with coverage, either omission of important assumptions or inclusion of less important assumptions. Perhaps more importantly, there is the difficulty of writing statements that are at a fairly consistent level of directness, clarity, and of testability. While considerable effort was taken to account for both of these potential problems, improvement will undoubtedly be possible as future evaluation data help sharpen the focus. There may, indeed, be a "core set" of assumptions which will simplify further analysis. These sets of assumptions constituted the basis for the analysis of the EBCE model in terms of its theoretical rationale.

I. Assumptions Related to Objectives*

A. Source and Content of Objectives

1. While the school provides a framework of general objectives, the student should be allowed to select from those and develop his own set of personal learning objectives.

2. Learning how to learn (e.g., problem-solving; decision-making; inquiry skills; acquiring, using and communicating information in a variety of areas) has more long-term benefits for students than does a curriculum organized primarily around subject-matter disciplines.

B. Sequence of Objectives

3. The sequencing of objectives is optimally based on the student's interests and perceptions of need.

C. Level of Specification

4. A plan for learning should be stated in terms of long-range goals, shorter-range objectives, and how attainment of objectives will be demonstrated.

5. The most appropriate specification level for objectives is the end-of-project level--providing for reasonable guidance for curricular planning and evaluation as well as flexibility for individual differences.

II. Assumptions Related to Entering Behavior

A. Readiness for Learning Tasks (prior experience, learning, and intelligence and their assessment)

1. While there is evidence that concepts, principles and problem-solving skills possess a logical and linear relationship, it is preferable to base a learning plan on student interest and perceived needs and on the outcomes of LC/Student planning than on a pre-assessment of his status with regard to prior learning.

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* Assumptions are identified numerically to aid in interpretation of Table 1, pp. 141-2, that illustrates the relationship of EBCE to four views of education.

B. Selection of Strategies for Individual Learning Styles

2. Student participation in selection of learning activities and strategies will result in more appropriate learning activities than if accomplished only by teachers or other school related adults.

C. Motivation (expectation, need to achieve, incentives, level of aspiration, rewards and punishment)

3. The student has a basic desire to learn, seek knowledge, and acquire competence--thus intrinsic motivation is more important than extrinsic motivation.

4. Student motivation is enhanced when he is actively involved in the planning, conduct, and evaluation of his own learning.

5. Student motivation is enhanced when the learning environment is supportive rather than prescriptive.

6. Student motivation is enhanced when the student has both long-range goals and shorter-range objectives.

III. Assumptions Related to Instructional Design and Procedures

A. Curriculum

1. The integration of various academic disciplines, when possible, is preferable to separation of these disciplines.

B. Teacher Role

2. The development of the student's self-concept and value system by individual explorations and decision-making should be the primary goal of the teacher (LC).

3. Helping a student learn how to learn, to ask appropriate questions, and acquire and use information, is more beneficial than expertise in a given subject-matter area.

4. The teacher (LC), insofar as is possible, should be non-judgmental toward student-generated ideas and values--one who listens, questions, understands, and empathizes.

C. Student Role

5. Learning is more efficient and permanent when the learner has committed himself to a set of activities and outcomes than when such activities and expected outcomes are assigned.

6. Many secondary school students are capable of assuming primary responsibility for the initiation, direction and conduct of their learning.

7. Many secondary school students are capable of receiving, interpreting, organizing, and reorganizing in a systematic way knowledge which comes about through self-initiated and planned subject-matter explorations and do not require pre-organization and sequencing of new material.

D. Types of Learning Methods

8. Very often, the best solutions to the facilitation of learning are those that emerge and evolve from the processes of planning, performing, and replanning.

9. Experience-based learning in which the student attempts to acquire concepts and principles via problem-solving techniques is the best approach for many secondary school students. The amount of guidance provided by the LC to ensure informed decision-making by students, quality of learning plans, integration of experiences and knowledge, and related reading should vary as a function of student need.

E. Student Grouping

10. Opportunities for students to work both individually and with peers should be available.

11. Student groups should be formed primarily on the basis of mutual interest rather than age, grade-level, ability, achievement, or subject-matter classification.

F. Context

12. Transfer of learning is best facilitated if it occurs in functional contexts (real-life situations rather than simulated in the classroom).

13. Students become less alienated from the existing society when the society is the context of learning activities.

IV. Assumptions Related to Performance Assessment

A. Focus

1. Evaluation of learning outcomes should be focused on individual learners, their progress, and the particular situation in which they are operating rather than on a group standard or norm-referenced criteria.

B. Methods

2. Assessing learning progress should include self-evaluation.

3. Students should select the method by which they will demonstrate what they have learned.

C. Standards

4. Subjective judgment of the quality of student work is an appropriate, and, in many cases, the only approach that can be used. Because standards should be tailored to the student, to the project, and to the available resources, it is not feasible to prespecify objective standards.

D. Grading

5. Assessment of learning outcomes should be based on criteria which have been specified in advance, tailored to the student's goals and abilities, and are well known to the learner.

In summary, the EBCE model may be described as an organized set of environmental learning conditions and procedures that blends academic learning with career explorations. The various conditions prescribe the roles of students and adults, the context of learning, the curriculum or the general structure for generating the instructional content, and evaluation. The model emphasizes the organization of environmental conditions from which learning activities and performances are specified rather than the organization of prescribed and specific sets of learning content and activities. The model, therefore, assumes that given a set of positive and learning

enhancing environmental conditions, the learner can handle most of the rest. The rest, in this case, refers to such internal processes as receiving, interpreting, organizing, storing, retrieving, and reorganizing knowledge.

There is more attention given to the learner as a social being who, under appropriate conditions, can select, investigate, and integrate new material rather than merely an information processor for whom new material must be carefully selected and sequenced in order that this material can be acquired and organized efficiently and permanently. The model does not deny the importance of prerequisite skills and knowledge, but in choosing between preorganization of content and active student involvement in content and activity selection, the developers chose the latter.

Chapter Summary

This chapter presented a fairly detailed description of EBCE procedures organized by the selected analytic model. Assumptions that are implicit in the model's procedures were also presented and organized according to the same framework. This organization is continued in the next chapter where the various assumptions are analyzed by comparing them with selected data from theory and from empirical investigations.

CHAPTER IV

COMPARISON OF EBCE ASSUMPTIONS WITH LEARNING THEORY

Introduction

Basic assumptions about EBCE that were derived from descriptive material in Chapter III are examined in this chapter by use of the following kinds of data: (1) learning theory, (2) teaching theory, (3) empirical data concerning both, and (4) philosophies of education. Depending on the stage or level of theory development, all of these types of data are admissible evidence to theory building (Snow, 1973). Wheras theories of teaching pertain to how teachers behave, why, and with what effects, and theories of learning describe and explain the conditions under which learning does and does not occur (DeCecco, 1968), philosophies deal with goals and aims of educational systems and thus influence both types of theorizing. Based on the particular philosophy one espouses, certain values and beliefs influence the attitudes held toward how instruction ought to be organized, how the teacher ought to behave, the role of the student, and so forth. In many cases such philosophically-based or belief systems comprise the totality of available "data" upon which judgments may be made. They are hypotheses or basic ideas and expectations with which research begins. According to Snow (1973), whether they are immediately testable or not they qualify as a level of theory.

The primary object for analysis here may be appropriately termed a tentative theory of instruction in that such theories normally state how the instructional process is to be conducted. Frequently, theories

of instruction have also been theories of curriculum in that the range of the content to be presented is also included. Thus, theories of instruction often presuppose epistemological issues, i.e., issues concerning content are resolved prior to setting out a theory of instruction: for example, what is worth knowing and the structure of that knowledge. The EBCE model, however, does not assume that such issues have been settled and hence deals only with the techniques of the teaching/learning process. In fact, such issues are essential aspects of the EBCE approach to educating youth--not so much in the specification of what is worth knowing and why, but in the processes by which this takes place.

Bruner (1969) asserts that there are obvious specifications about how a society must proceed in order to equip its young. First, it must convert what is known--whether a skill or a belief system or a connected body of knowledge--into a form capable of being mastered by a beginner. Second, given the limited amount of time available for learning; there must be a due regard for saving the learner from needless learning. There must be some emphasis placed on economy and transfer and the learning of general rules. Third, a society must assure that its necessary skills and procedures remain intact from one generation to another.

How are instructional approaches formulated that possess these characteristics? Woodruff (1967) suggests that there are two basic approaches: (1) the formulation of a set of instructional practices based on the acceptance of some general concept about human development, e.g., a child development concept (while usually internally consistent, they are often developed independently of systematic and validated concepts of human behavior and learning) and (2) an approach that

begins with data about human learning and moves to logically implied educational practices. Woodruff continues by stating that "direct approaches from learning theory to teaching have not been helpful... but on the other hand there should be a close relationship between the actual processes of human behavior and the processes of teaching." The nature and extent of this kind of relationship for Experience-Based Career Education is addressed next.

The Examination of EBCE

It is not the intent of this study to exhaust the available literature that relates to the various assumptions. However, it is believed that the data presented represent an adequate basis for deriving tentative conclusions about the model's theoretical rationale. Each assumption is presented below, accompanied by data that either support, does not support, or are somewhat equivocal. Following the analysis of each set of assumptions, the results are briefly summarized. Judgments pertaining to the extent to which EBCE represents a validated approach to instruction are reserved for the final chapter.

Earlier it was suggested that there was considerable interaction among the various EBCE model components, that it was difficult to discuss one aspect (for example, objectives) and avoid discussing another aspect (such as the organization of curriculum). Evidence of the interaction will be seen as the various assumptions are analyzed. For example, the assumption dealing with sequencing of objectives is closely related to assumptions having to do with readiness for

learning tasks. Therefore, in a few cases, two or more assumptions have been combined for analysis.

Assumptions Related to Objectives

Source and Content of Objectives

While the school provides a framework of general objectives, the student should be allowed to select from those and develop his own set of personal learning objectives.

Learning how to learn (e.g., problem-solving; decision-making; inquiry skills; acquiring, using, and communicating information in a variety of areas) has more long-term benefits for students than does a curriculum organized primarily around subject-matter disciplines.

Questions concerning the source and the content of objectives are essentially philosophical ones. The range of viewpoints stretches from those who claim that the objectives for instruction ought to be nationally established and derived from the academic disciplines as well as from those personal characteristics of citizenship which guarantee the transmission of the essential knowledge and skills of the culture, to those who believe that young people should not be coerced into learning anything not to their liking.

There are three general views of education, briefly described in Chapter II, that encompass the range. The first view, that of preserver and transmitter of the cultural heritage, has spokesmen such as Hutchins (1936), Adler and Mayer (1958), Griswold (1959), Bestor (1955), and the Harvard Committee of 1945. According to their view, education is for the cultivation of the intellect and should be concerned only with the "essentials". Further, since "truth" is the same everywhere, the case is made for the preserving function of education, the requirement for "essentials," and the uniformity of curriculum.

The middle ground, which views education as an instrument for transforming culture, places more emphasis on the needs of the society in which education is occurring while maintaining the importance of the academic disciplines as one source for the objectives of education. Impetus for this view stems from Dewey (1916), Kilpatrick (1935), Counts (1932), and Smith (1950).

There are other spokesmen who may be identified with the middle ground, but who have been more specific in their recommendation for source and content of objectives. For example, Tyler (1964) proposes that the selection of objectives ought to be based on (1) the analysis of culture (the kinds of behavior--ways of thinking, feeling, and acting--that have value in our society and that help a person become an effective human being in it); (2) the present status of the student: what has been already learned, and what readiness exists; (3) what we know enough about to teach; (4) relevance to the school's philosophy of education; and (5) consistency of these objectives with a theory of learning (how learning ought to be organized). Earlier, Tyler (1950) listed the study of the learner, society, philosophy, psychology, and the subject matter as the primary sources. In a similar vein, Parker, Edwards, and Stegeman (1962) suggest that the decision concerning the aims and purposes of the school can be decided only after a careful study of the society, the teachers, the students, and the schools themselves. A somewhat different approach was recommended by Goodlad (1966). He proposed looking at values (a belief that something is good), then deriving educational aims from values, education objectives from educational aims, and learning opportunities from educational objectives. For Goodlad, values are the primary data source.

The third position, which stresses education for individual development, stemmed from a second interpretation of Dewey. The basic idea is to move the student into the center of educational activity and permit him to develop as a unique personality. It is the student who selects the objectives for study. Rugg and Shumaker (1928) were early proponents of this viewpoint. As was the case with the middle ground, proponents of this viewpoint vary in the degree to which the student's interests should dictate the curriculum. A more conservative position of the student-centered approach regarded the school as serving both as a conserving force on behalf of human democracy and as a force to help individuals develop to their fullest.

Other spokesmen of the "individual development" point of view include Rogers (1967), who assumes that significant learning takes place when the subject matter is perceived by the student as having relevance for his own purposes; and Postman and Weingartner (1971), Goodman (1960), Holt (1964), and Leonard (1968), who all generally see the student as the starting point for the selection of objectives. Perhaps Neill (1960), represents the most extreme laissez faire approach to permitting students to learn what they want to learn and when they choose.

In summary, the "source of objectives" question has occupied the attention of educational specialists, of laymen, and of representatives of other specialities for a good part of history. Early efforts to prepare statements of objectives include the Yale Report (Committee of the Corporation and the Academical Faculty, 1830); the Report of the Committee of Ten (National Education Association, 1894); the Report of the Committee of Fifteen on Elementary Education

(National Education Association, 1895); the Commission on the Reorganization of Secondary Education (CRSE, National Education Association, 1918); and the Educational Policies Commission (National Education Association, 1961). These efforts resulted in statements that generally reflected personal values of those who were involved in their development. Later, Charters and Miller (1915) and Bobbitt (1918) were the first to attempt to formulate a methodology for determining educational objectives on a scientific basis. Much later, Smith, et al. (1957) suggested five criteria to be met by objectives if they are to be valid. In this system sound objectives must (1) be conceived in terms of the demands of social circumstances; (2) lead toward the fulfillment of basic human needs; (3) be consistent with democratic ideals; (4) be either consistent or noncontradictory in their relationship with one another; and (5) be capable of reduction to behavioral terms.

No matter what the criteria used, the development and validation of objectives is destined to be based on value systems of those who develop objectives rather than logical grounds. The three viewpoints described earlier suggest that the major difference lies in the shift from beliefs that there are certain basic, unchangeable truths and essentials that must be transmitted, to a willingness to include needs and interests of students in the formulations while responding more to the contemporary society, and finally to the view that places the student's values and perceived needs at the front. It is quite apparent that the three viewpoints are seldom discrete in practice but tend to merge into each other.

The second EBCE assumption that affirms the desirability of learning how to learn rather than focusing on subject matter disciplines is a matter of content selection. Some data concerning the proper content for educational objectives have already been presented. While it is possible to present additional data concerning content, this material was reserved for a later section dealing with the organization of the curriculum.

The position of the EBCE model concerning the source and content of objectives would seem to include acceptance of both the second and third views--education as an instrument for transforming culture and education for individual development--but with, perhaps, slightly more emphasis on the third viewpoint. Thus, EBCE's view on the sources and content of objectives is identified with Dewey's pleas for curriculum based on the student's problems and concerns; partly with Tyler's concerns that objectives be based on the existing culture and on helping students become effective humans in that culture; with Carl Roger's emphasis on "significant learning"; and with even more contemporary writers who espouse the student as the starting point for selection of objectives.

Sequence of Objectives

The sequencing of objectives is optimally based on the student's interests and perceptions of need.

The decision to presequence objectives for students is usually based on the belief that sequencing will result in better and more efficient learning; that there is a learning hierarchy, either logically or empirically derived, upon which curriculum should be organized. Associated with this view is the assumption that there

are certain learnings which are prerequisite to later learnings and that unless students have mastered those prerequisites at a lower level, their efforts at learning tasks located higher on the hierarchy will be inefficient at best and useless at worst.

The decision not to presequence objectives is ordinarily based on the belief that students should select their own preferred sequences. Reasons for this approach include the issues of student motivation, high personal involvement, and the development of student responsibility for learning.

Since the rationale for sequencing vs. not sequencing is intimately related to student motivation, to learning task hierarchies, and to student readiness for certain learning tasks, the analysis of this assumption has been combined partly with assumptions related to entering behavior and also with assumptions concerning types of learning and their organization. This discussion appears later in the chapter.

Level of Specification

A plan for learning should be stated in terms of long-range goals, shorter-range objectives, and how attainment of objectives will be demonstrated.

Almost everyone who engages in the instructional process has goals or objectives. In fact, probably only a very small group of educators would propose that instruction and learning should just happen without any preconceived notion of the direction or the outcomes of the effort. Whitehead (1929), in criticizing school reform in England, stated: "This question of the degeneration of algebra into gibberish, both in word and in fact, affords a pathetic

instance of the uselessness of reforming educational schedules without a clear conception of the attributes which you wish to evoke in the living minds of the children." Taba (1962) states that having objectives aids in (1) making curricular decisions (e.g., selecting content, learning experiences, what to teach, etc.), (2) selecting from the vast areas of knowledge in the various disciplines, and (3) evaluating achievement. Tyler (1964) and Gagné (1968) are in general agreement on reasons for careful definition of instructional objectives. First, carefully defined objectives provide guidance for planning instruction. Second, such definitions are useful in performance assessment. Third, they help the student direct learning efforts.

Mager (1962) presented perhaps the most explicit description of objectives and added two criteria not usually expressed by other writers. They were that the behavior must be observable and that the behaviors are to be terminal. While some (Popham, 1969; Esbensen, 1968) are in general agreement with Mager, others (Ammons, 1967, and Eisner, 1969) argue for consideration of behavior which is not necessarily observable but can be inferred according to definitions agreed upon by those involved. In addition, Ammons sees objectives as descriptions of direction rather than as descriptions of terminal behavior.

There are few studies of the usefulness of objectives. One of these by Mager and McCann (1961) found empirical support for student benefits from knowing at the start the specific objectives they should attain.

The most appropriate specification level for objectives is the end of project level--providing reasonable guidance for curricular planning and evaluation as well as flexibility for individual differences.

While few professionals doubt the wisdom of having objectives, the issue of the degree of specificity for which objectives should be stated is a different matter. For this study, possible levels of specification are as follows: Pre-stated goals are highly abstract statements of intent that describe states of being that can usually be attained through education. Pre-stated goal indicators express observable or measurable learning achievements in a particular discipline or subject area that can be demonstrated on completion of an instructional program (a unit, a course, a semester's work, etc.). Pre-stated instructional objectives state specifically what the student is to know, be able to do, or demonstrate as a result of exposure to a particular segment of an instructional program. They ordinarily include the conditions under which the student will perform, the level of acceptable student performance, and time frames in which stated behaviors are to occur.

Proponents of specifying objectives at the third level include Popham (1969), Mager (1962), Tyler (1964), Gagné (1965), and Lindvall (1964). For example, Lindvall asserts, "Purposes which are phrased in such terms as to have command of..., to understand..., etc., are so vague that they can be interpreted in a variety of ways. As a result they have no meaning. If the process of defining educational goals stops at this point, it probably represents wasted effort." He summarized the writings on specifying objectives over the past decade as follows: (1) Statements of specific objectives should be worded

in terms of the pupil (not what the teacher will do) and (2) statements of specific objectives must include the exact behavior that the pupil is to be expected to exhibit.

There have been many who have argued against the practice of developing highly specific objectives. Ebel (1963) suggests that explicit statements involve the danger of overemphasis on conformity. "For if the goals of education are defined in terms of narrowly specific behavior desired by curriculum-makers and teachers, what need is there for creative innovation; what provision is there for adaptive behavior as the cultural world changes?"

Eisner (1969), following an analysis of problems inherent in high-level specification of objectives, concluded that: (1) they tend to overestimate the degree to which it is possible to predict educational outcomes; (2) they tend to treat all subject matter alike regarding the degree of specificity possible in stating educational objectives; (3) they tend to confuse the application of a standard and the making of a judgment regarding the appraisal of educational outcomes; and (4) they have tended to imply that the formulation of objectives should be a first step in curriculum development and hence have confused the logical with the psychological in educational planning.

Other complaints have been raised; for example, that stating objectives for every student description would result in thousands of objectives requiring hundreds of hours of teacher time. But Popham (1969) concluded, from an examination of reasons most often given for avoidance of stating objectives behaviorally, that "any risk we run by moving to behavioral goals is miniscule in contrast

with the current state of confusion regarding instructional intentions."

Eisner (1969) expressed the most common concern. He asserts that the issue is not merely of technique but a question of value. Advocates of high-level specification conceive of education as the shaping of behavior, whereas the not-so-enthusiasts of high-level specification view education as an emergent process guided throughout. He suggests a second type of objective--the expressive objective--which describes an educational encounter, a situation in which children are to work, a problem with which they are to cope, a task in which they are to engage, but which does not necessarily specify from that encounter, situation, or task what the student is to learn.

Both Popham and Eisner agree, however, that in some cases subjective judgment over performance of objectives is necessary and preferable to use of a pre-conceived standard. Krathwohl (1971) offers a compromise by suggesting the need for objectives at several levels of analysis.

A study by Jenkins and Deno (1971) revealed no differences in student achievement between students who were given very general objectives and those who were given highly specific objectives. Another study by Olson (1972) showed similar findings. However, Rothkopf and Kaplan (1972) found that more intentional learning resulted from specific than from broad objectives.

The EBCE model's position on statements of objectives is as follows: While it incorporates objectives for planning instruction, for monitoring progress, for giving direction to students, and for evaluating outcomes, the model does not employ the third or highest

level of specification. Two major differences are noted. First, the EBCE guidelines for objectives call for specifying terminal behaviors for end-of-project outcomes (as much as a semester's work) and which also serve as descriptions of directions toward which the student proceeds. Thus it is assumed that clarity and specificity are not necessarily bound up with short-duration objectives (a day or two of work). The primary purpose for this is to ensure flexibility, to avoid locking the student (and Learning Coordinator) into a pre-conceived regimen. Second, while objectives are stated prior to learning activities, the student has heavy involvement in their development and, in fact, the student's involvement in this specification is seen as an essential part of the learning process.

EBCE, then, subscribes to the benefits that accrue from the use of learning objectives, but differs from most views on the subject on the two points noted above. It is apparent that EBCE's reliance on the student's involvement in development of learning objectives has rather profound implications for other assumptions --specifically in the area of entering student behavior and in pre-organization of the curriculum.

Thus the real issue is not only the use of objectives and how they are formulated; that is partly a question of values. The eventual determination of EBCE as an empirically supported theory of instruction will be based on a measurement of the gains and losses of learning associated with two competing conditions: (1) active student involvement in objective and content selection and thus purportedly stronger learner motivation, and (2) a logical and empirically tested hierarchy of objectives and

content organized to ensure systematic learning but perhaps lower student motivation as well as less student responsibility and self-reliance. Assumptions which relate to entry behavior and organization of curriculum, and which impact on the nature and use of objectives are analyzed in the following sections.

Assumptions Related to Entering Behavior

Readiness for Learning Tasks

> While there is evidence that concepts, principles and problem-solving skills possess a logical and hierarchial relationship, it is preferable to base a learning plan on student interest and perceived needs and on the outcomes of LC/student planning than on a pre-assessment of his status with regard to prior learnings.

There are two basic questions that can be identified: (1) Is the learner capable of efficiently selecting and dealing with learning content or should content be teacher-selected and managed? and (2) Regardless of an existing logical or hierarchial relationship of learning content in a given subject area, is student involvement in selection of content--and thus an assumed increased investment of energy--preferable to an organized curriculum where student involvement and perhaps personal investment are lacking? The first issue is discussed here, while the second is dealt with under Assumptions Pertaining to Motivation in a later part of this section.

The label "behavior control" is often applied to teacher selected and managed content because it implies the notion of teaching as a method of controlling the behavior of the student, what is learned, and the conditions under which learning occurs. Its proponents claim the foundation of a behavioral science of instruction (Glaser, 1965 and Skinner, 1968). Stolurow (1965) views the management of

instruction as a "new concept of instruction as a communication and control process" which will solve the educational crisis. Taber, Glaser, and Schafer (1965) believe that the essential task of teaching is to get students to perform "precisely delineated responses" and therefore teaching requires careful statements of precise objectives.

Both Glaser (1969) and Stolurow (1965) argue that the efficient design of instructional procedures depends on precise measurement of the characteristics and capabilities of the individual student. Glaser further claims that definition of the stimulus, response, and structural characteristics of the subject matter and of the involved behavioral repertoires of students "will determine what to teach and, correspondingly, how it is to be taught."

Gagné and Brown (1961), while introducing considerable complexity to the behavioral-control model, also emphasize that the task of the teacher is to manage learning. Gagné defines learning sets as the capabilities the student possesses at any given stage in the learning of a given task. He recommends determining the sets necessary for learning a particular task by working backward from the task to the prerequisite capabilities.... The process continues until one has discovered increasingly simple and more general capabilities which, with the higher capabilities, form a hierarchy.

DeCecco (1968) suggests that capabilities for learning how to learn are often at the base of Gagné's learning structure. They are basic and general capabilities, while learning sets are more specific, defined in relation to particular instructional objectives, and hierarchially related. Thus DeCecco's analysis suggests that prerequisite skills having to do with "learning how to learn" are quite basic and

that perhaps their application requires a carefully designed hierarchy of learning tasks within a subject area discipline as well as knowledge of the student's learning set. Ausubel (1959) and Jensen (1965) agree generally by stating, "Readiness is the adequacy of the student's existing capacity in relation to some instructional objective."

Whether one agrees with these statements of cognitive theorists or with the experiential assumptions underlying EBCE depends much on one's interpretation of "meaningful learning." Theorists such as Ausubel (1969) and DeCecco (1968) believe meaningfulness is an essential ingredient for learning. But meaningfulness for Ausubel presupposes adequate subject-matter sophistication on the part of the learner to which new material can be related. Thus something is meaningful if new ideas or learning tasks contribute to an extension, elaboration, modification, or qualification of an existing idea in the student's cognitive structure. It is the relationship to something the learner already knows and not merely an interest or curiosity. Ausubel (1959) questions the "internal ripening" theory of maturation which leads to the self-selection principle of curriculum development--a principle which assumes that interests are an adequate index of developmental need.

DeCecco sums up this position by asserting "no matter what feats of will, self-denial, and enthusiasm the student may perform and no matter how much dedication, love, and imagination the teacher may supply, the student cannot acquire new performances based on other performances which he has not acquired."

The position with which EBCE can be most closely identified (i.e., that the learner is capable of efficiently selecting and acting on

content and discovering meaning in his efforts) is criticized as not being consistent with learning theory but rather a loosely grouped amalgam of ideas from cognitive psychology, child development, and the study of creativity. Antecedents of ideas consistent with this approach are found in the writings of Rousseau and Montessori and, to some extent, John Dewey. EBCE's focus on student-perceived interests and needs is primarily based on motivational research as well as the highly esteemed value of investing the students with a major responsibility for learning. Both of these issues are discussed in later sections.

It should be noted that with the EBCE approach, new performances to be acquired by the student cannot be prespecified because they are not seen as identical for all students. New performances are specified for each student at a given point in time, in consideration of his previous performances and his interests.

Selection of Strategies for Individual Learning Styles

> Student participation in selection of learning activities and strategies will result in more appropriate learning activities than if accomplished only by teachers or other school-related adults.

The key word in this assumption is appropriate. It may be interpreted that student selection of learning activities is "more appropriate" because only they know which activities are personally attractive or interesting and thus motivational. Or it could mean that students are in a better position to select learning activities because of their self-knowledge; i.e., students are better able to select activities and strategies that match personal preferences and learning styles. Stated differently, the validity of the assumption can be examined

for the value of the process of selection itself, or for the outcomes of the selection; i.e., how learning is affected because appropriate selections were made. Both interpretations are reasonable.

With regard to the value associated with the process of selection, the evidence, or interpretation of evidence, is practically identical with that presented under Asumption I of this chapter, which dealt with the selection and organization of content to be learned. In short, the reasoning is that student involvement and responsibility for selecting learning activities and strategies is appropriate because it is motivational; it increases student responsibility and self-reliance; interest in and effort expended on a task tends to continue at a relatively high level; and it sends a clear message to the student that he is trusted. There is some empirical evidence to support this view (Spotts, et al. 1974, and Christensen, et al. 1975) and, as described earlier in this chapter, there are a large number of writers who give support from primarily a value-oriented position. Additional support was supplied by Pascal (1971) in his study of three instructional options offered to students: lecture, lecture with discussion, and independent study. Students who were given their preference developed more positive attitudes toward the subject with no effect on cognitive outcomes.

With regard to the other interpretation--that student selection is more appropriate because students can match up selected learning tasks with activities and strategies which are most efficient--there were no studies found that attempted to investigate directly the relative merits of student-selected activities and strategies vs. teacher-selected activities and strategies in terms of the effects on

learning. However, much research has been done on the question, "Can knowledge of a student's capabilities, interests, and preferred learning styles be matched to a method or approach?"

Much of the research in this area falls under a line of investigation called ATI (aptitude-treatment interaction). The emphasis has been on determining whether individual patterns of aptitudes can predict which of several learning methods might help different individuals attain similar educational outcomes. According to Cronbach and Glaser (1965), if such measures could be developed, methods of instruction can be designed, not to fit the average person, but to fit an individual or groups of students with particular aptitude patterns. Unless one method or strategy is clearly best for everyone, treatments should be differentiated in such a way as to maximize their interaction with aptitude variables.

Comprehensive reviews reporting detailed analyses of ATI studies (Bracht, 1969; Cronbach and Snow, 1969) are less than promising. For example, Bracht's survey of 90 studies, in which 108 individual difference-treatment interactions were examined, showed only 5 as being significant. Similarly, Cronbach and Snow's review concluded that few or no ATI effects have been solidly demonstrated and that the empirical evidence found in favor of such interactions was often not very convincing. Glaser (1972) believes that the reason for such failures to turn up solid evidence is that generally used aptitude constructs are not producing dimensions for measuring those individual differences that interact with different ways of learning, that the treatments investigated in the ATI studies were not generated by a systematic analyses of the kinds of psychological processes called upon in particular

instructional methods, and that individual differences were not assessed in terms of these processes. However, Glaser suggests that other studies done by Melton (1967), Rohwer (1971), and Rosner (1972) support the promise of a line of research in terms of cognitive processes; i.e., the identification of kinds of processes required by various learning tasks and how individuals perform these processes. The conditions required to learn the task could then be adapted to these individual characteristics, or the individual might be taught how to engage more efficiently in these processes.

More recent studies continue to support the promise of ATI but, according to Cronbach (1975), interactions between the instructional situation and the person are exceedingly complex and frequently cannot be confined to a first order analysis. In other words, a one-to-one relationship between an aptitude or trait and a treatment seldom holds up because of the number of variables that can enter the picture. As Cronbach suggests, "Once we attend to interactions, we enter a hall of mirrors that extends to infinity."

Evaluation studies by Christensen et al. (1975) of the EBCE model included a factor analysis of the model's differentiated effects on students. He used 63 variables to explore the relationship between:

a. Student characteristics and treatment patterns.

b. Student characteristics and program outcomes.

c. Treatment patterns and program outcomes.

His purpose was to begin to define what kinds of students make use of what aspects of the EBCE program with what differential effects. From the data a number of hypotheses were derived concerning the most meaningful factors which have possible implications for adoptors of the

model and which should be studied further. They are:

Hypotheses Bridging Across Three Categories: Student Characteristics, Treatments, and Effects.

1. Younger students make more use of the school center, especially the features that help them in meeting English and math requirements, and earn credit predominantly through supplementary learning activities.
2. New students to EBCE (of any age) who feel their prior learning has been inadequate and who participate in the program are the most enthusiastic proponents of the worth of the school year.
3. Those with previous paid work experience are among the most satisfied with their progress in basic and academic skills and with their one-to-one associations with LCs.
4. There are moderate critics of school who are making maximum, effective use of the program, participating fully in the community learning experiences, and earning both project and supplementary activity credit.

Hypotheses Relating Student Characteristics with Treatments.

5. There are students who have a generally negative feeling toward the world of work, who stay at the school center much of the time and are seldom involved in the external learning experiences in the community.
6. Some students most seriously disaffected by school in the past do not really engage in the EBCE program except at the school center which they see as useful primarily

for its social activities.

Hypotheses Relating Student Characteristics with Effects.

7. Holding favorable attitudes toward business and toward previous years of learning is a predisposing condition for success in preparation for work, for college, and generally for making decisions after high school.
8. Female students tend to seek help in developing their interpersonal skills, with emphasis on self-expression, and to feel special satisfaction with their learning about careers and learning how to make decisions.
9. Students clearly satisfied with their education in the prior year realize their major benefits in FWL-EBCE from learning about and planning for possible careers.
10. Students from the less affluent and higher minority schools seek help especially in language skills, writing and reading, and feel their major benefit from FWL-EBCE is assistance in preparation for college.

Hypotheses Relating Treatment with Effects.

11. The combination of using learning packages and satisfaction with meeting individually and in groups with LCs is beneficial for preparing well developed career plans for after high school.

In addition to shedding some light on issues concerned with kinds of educational experiences for different classes of students, these data-based hypotheses suggest that assessing educational effects on students is dependent not only on the nature of the student and the nature of the program, but that the extent of use of program features

should also be considered.

The work of Kagan and Kagan (1970) in cognitive styles or personality characteristics also provides support for the theme of process concepts as individual difference variables. Adaptive educational environments could take advantage of the fact that individuals are capable of adapting their competences to different situations--if the situation permits such adaptability.

Another question can be asked: How can the school be organized so that the individual's particular pattern of capabilities is taken into account? In theory, it could be done by extension of Gagné's work on learning hierarchies, by further work on identification of individual learning styles, and a clever matching of each. In practice, this approach has seemingly not been demonstrated to be effective in other than fairly small and discrete learning tasks. For the present, an alternative is to make use of the learner's self-knowledge and personal preferences. And this is, in effect, what EBCE assumes should happen.

Motivation

The student has a basic desire to learn, seek knowledge, and acquire competence--thus intrinsic motivation is more important than extrinsic motivation.

Student motivation is enhanced when he is actively involved in the planning, conduct, and evaluation of his own learning.

Student motivation is enhanced when the learning environment is supportive rather than prescriptive.

Student motivation is enhanced when the student has both long-range goals and shorter-range objectives.

DeCecco (1968) uses four concepts (arousal, expectancy, incentives, and punishment) to classify factors which account for motivation and

believes these are primarily teacher functions. The arousal function is to engage the student in learning; the expectancy function is handled by describing concretely for the students what each will be able to do at the conclusion of instruction; for the incentive function, the teacher rewards for present achievement in a way that stimulates future achievement; and finally the disciplinary function is to use rewards and punishment to control deviant behavior.

With regard to the student's level of aspiration, DeCecco (1968) summarized the outcomes of several studies and concluded that (1) past success conditions students to make realistic increases in their expectations, (2) past failure, over long periods of time, conditions students to lower their expectancies--to guard against failure, and (3) some students unrealistically raise their expectancies almost as if the hope of success alone would bring success.

What about incentives? Again, according to DeCecco (1968), they are goals objects or symbols which the teacher uses to produce vigor. They may be (1) feedback, (2) praise and encouragement, (3) grades, or (4) fruits of successful completion. He asserts that feedback must be given to the student with sufficient frequency and in a form that will confirm expectancies. Further, that instruction must be arranged in ways that will permit students to develop checkpoints and standards for assessing their own achievment.

A series of studies on the relationship of arousal (or the anxiety state) showed, according to Spielberger (1966), that: (1) high-anxiety students obtained superior test scores on a learning-recall task when relatively few recall errors were possible; (2) of those students in the broad middle range of IQ, the low-anxiety students performed better than the high-anxiety students; (3) high anxiety had no effect

on the performance of low-ability students; and (4) high anxiety tended to facilitate the performance of the very brightest students.

At first glance, Spielberger's conclusions suggest that the optimum kind and amount of externally-induced anxiety ought to vary as a function of student ability. Since, however, the studies were performed on learning-recall tasks and these kinds of learning represent a relatively small portion of the kinds of learning in which students are engaged, the conclusions must be tempered accordingly.

In a follow-up study on the long-term effects of anxiety on academic performance, Spielberger found that the percentage of high-anxiety, able students who failed was four times greater than the percentage of low-anxiety, able students who failed. In the learning of concepts, however, high-anxiety, high-intelligence students performed better than low-anxiety, high-intelligence students. The superiority of high-anxiety students did not hold up for low-ability students. The follow-up study perhaps lends more credence to the position that externally-induced anxiety (the arousal function) causes better learning with some students.

It has been suggested that the arousal function of motivation can be attributed to curiosity. Friedlander (1965), however, suggests that while curiosity is undoubtedly a significant component of children's relationship with their world, it may be only marginally important as a motivation and incentive for academic learning. He described curiosity as often very unsystematic and non-cumulative, as perhaps very immediate and easily satisfied. He further states that curiosity may be as readily satisfied by incorrect or partial information as by true or complete information and that it may be

strongest with respect to issues not necessarily the proper concern of the school. DeCecco (1968) suggests that boredom may be the basis for curiosity.

Other factors long associated with incentives include grades and praise/blame. Kennedy and Willcutt (1964) in reviewing the praise/blame studies concluded that praise does not help serve underachievers, blame does not impede the performance of very bright adolescents, and blame does not impede performance of students in certain situations; e.g., the performance of Negro students performing under Negro examiners. The implication of these studies is that effects vary depending on the student and the situation.

With regard to grades, according to Goldberg (1965), there are no firm answers. He studied the effects of five grading policies on college student motivation: strict, lenient, bi-modal, normal, and rectangular. He discovered no appreciable differences in performance as a result of grading policies and concluded that instructors ought to be wary of defending their grading policies on motivational reasons.

Competition has also been used as a means of increasing student motivation even though research on competition vs. cooperation is inconclusive and does not furnish an adequate basis for determining the conditions under which competition aids student growth. Deutsch (1960) compared the effectiveness of competitive and cooperative groups in solving puzzle problems and human relations problems. Deutsch found that the cooperative groups surpassed the competitive groups in almost every respect: communication was friendlier, more open, and more effective; in the cooperative groups they exhibited greater diversity, coordination, sharing of effort, and responsibility; and they were more orderly and productive. DeCecco (1968) concludes, "The

evidence we have examined does not indicate that we should try to eliminate competition from the school." Neither does he believe that the experimental evidence supports the removal of punishment procedures from the repertoire of the teacher.

It is generally acknowledged that feedback--knowledge of results--is beneficial to student learning and tends to maintain a high level of student activity. It is much less certain what the schedule of reinforcement should be. Kight and Sassenrath (1966) found that students with high achievement motivation profit from the immediate knowledge of results provided in programmed instruction. High-anxiety students find the highly structured teaching in programmed instruction a less anxious situation than they find loosely structured situations. Again, we are apparently faced with a practice (feedback) whose benefits vary depending on the nature of the feedback and the nature of the student.

It is apparent that proponents of externally-controlled or -induced motivation, of whatever kind, are also more likely to be proponents of teacher control of the content and process of the learning enterprise. For example, DeCecco continues by asserting, "We must select objectives which accommodate the student's entering behavior. If students are required to use skills and knowledge they lack, the motivational effects of failure will be produced." Further, "If the assessment of objectives requires considerable effort and time, sub-tasks should be concretely described so that effort does not wane--a continuing sense of accomplishment is needed." Skinner (1953) states it bluntly: "The control of such factors is outside the organism and through use of positive and negative reinforcers."

Most of the issues concerned with motivation discussed thus far require, or at least imply, external control. There is another point of view. EBCE actions concerning motivation assume that intrinsic motivation exists and can be relied upon to cause learning-task initiation and continuance. The assignment of credit, however, is an example of extrinsic devices used by EBCE. Guilford (1961) makes a case for the existence of a drive for gaining competence, and Maslow (1958) and Rogers (1962) describe a drive called "self-actualization."

Assuming the potential for internally generated motives, how are these acquired and maintained for the duration of a learning activity? In a program of research in social psychology, McClelland, et al. (1965) listed twelve propositions for developing new motives in adults. They are summarized as follows:

1. Educational attempts to develop a new motive are more likely to succeed if the learner has reasons to believe that he can, will, or should develop a motive.

2. Educational attempts are more likely to succeed when the learner feels that developing a new motive is realistic and reasonable.

3. The individual is more likely to develop a new motive when he or she clearly understands the various aspects of the motive.

4. Change in thought and action will most likely occur and endure when the learner can associate the motive to related actions.

5. A new motive is most likely to affect the thoughts and actions of the individual when he can relate it to events in his everyday life.

6. A new motive will more likely influence a learner's thoughts and actions when he sees the motive as an improvement in his self-image.

7. A motive is more likely to influence a learner's thoughts and actions when it can be seen as an improvement on the prevailing cultural values.

8. A motive is more likely to influence a learner's thoughts and actions when he or she becomes committed to achieving concrete goals which are related to the newly-formed motive.

9. A motive is more likely to influence future thought and action when the record of progress toward achieving goals is kept by the individual.

10. Changes in motives are likely to occur in a warm and supportive atmosphere and in which he or she is respected by others as a person capable of guiding and directing his own future behavior.

11. Changes in motives are more likely to occur when the setting dramatizes the importance of self-study rather than the routine of everyday life.

12. Changes in motives are more likely to occur and endure if new motives are a sign of membership in a new reference group.

Various other studies (Bruner, 1961; Kersh, 1963) indicate that students can generate their own instruction and strategies for learning, and as this occurs they need less feedback from the teacher or program. In other words, they can carry on by themselves. DeCecco (1968), however, wonders how soon this can happen and suggests that independent scholars are often the result of long, dedicated teaching.

Bruner asserts that when students are allowed to approach learning as an act of discovery, they will engage increasingly in learning with the autonomy of self-reward; thus students provide their own stimulation and in this way perform the arousal function. Kersh's research investigated the motivational effects of discovery-learning in high school students in which he compared directed learning and guided-discovery approaches. He found the guided-discovery group used the rules (his measure of motivation) more often than did the directed-learning group. He concluded that interest is a result of learning by discovery. Others agree that if an individual is indifferent to

an outcome, he will not act even when he is virtually guaranteed success.

Taba (1963) concurred and suggested that extrinsic rewards, such as grades, have been used to create motivation for learning. She affirmed the belief of many that children are "endowed with curiosity and with what White (1961) calls competency learning and that some approaches to learning are more capable of cultivating this motive than others."

She believed that learning by discovery, since it is an active process, is likely to cause the competency motive to function as a drive for learning behavior.

Flanders (1951), investigated the relationship of personal/social anxiety and instructional method by producing experimentally two learning climates--a learner-centered climate (teacher acceptance and support and public standards of evaluation known to students) and a teacher-centered climate. In the latter, teacher comments were directive and demanding, and standards for evaluation were private and unknown to students. He learned that learner-centered students were more task-oriented, had less anxiety, and felt less emotional disturbance. The teacher-centered students felt more hostile, agressive, apathetic toward learning, and generally more emotionally disturbed. However, DeCecco (1968) suggests that there are no comparable data on levels and types of anxiety produced by teachers who concentrated their efforts on the achievement of instructional objectives as contrasted with those produced by teachers who concentrated their efforts on interpersonal relationships.

Backman (1964) found that a person's expectation of success is greatest when the appropriate training and freedom to use that training

exists. Woodruff (1967) feels that since all behavior is adjustive in nature, the individual is somewhat satisfied when a sense of progress toward need satisfaction is present and that the perceived instrumental value of an object or process furnishes an input which becomes part of the concept of that object or process. The perceived value is the foundation of motive in all its forms.

Caron (1965) studied high school students enrolled in college-preparatory courses to determine the effect of motivational variables on knowledge-seeking behavior and found that where behavior is guided by extrinsic motivation, both high fear of failure and having an even chance of failure (each of which contributes to aroused anxiety) have a detrimental effect on the ability to organize information into essential principles so that it is viable for transfer to novel situations.

Perhaps one way of summarizing the research on motivation is that it is somewhat ambiguous. This is not surprising, in that motivation is a construct rather than an object. Since it lacks any sensory referent, it is difficult to define. Much of the research suggests that the effects of motivational variables vary as a function of the student and the situation. Different students profit from different approaches. However, the seminal work of McClelland and associates (1971) with the achievement motive indicates that learner motivation is an exceedingly important factor. For example, he describes an "influence process" conceived in terms of "input," "intervening," and "output" variables which enter into the motive change process. Of the seven input variables listed, six are reasonably close to the EBCE model's assumptions. They are: (1) goal setting for the person, (2) relating new networks to superordinate networks (reality, the self, and cultural values),

(3) personal goal setting, (4) knowledge of progress, (5) personal warmth and support, and (6) support of reference group.

While McClelland believes these variables are also appropriate for use with attitude change, for example, they hold most narrowly for motives and especially the achievement motive.

Assumptions Related to Instructional Design and Procedures

Curriculum Organization

The integration of various academic disciplines, when possible, is preferable to separation of these disciplines.

The question of what knowledge is of most worth is a perennial one. Kazmanian (1960) defines the essential ingredients of the question: What constitutes disciplined knowledge, what kind of knowledge has the greatest education impact, and how does one develop the higher-order processes? The educational goal of enabling students to define their own educational aims and learning tasks is an ideal for many educators. Eisner (1971) describes a dilemma: "We want, I assume, to prepare students who will become increasingly responsible for conducting their own education. The problem that nags me...deals with the problem of reconciling it with the ideal of utilizing the best and widest array of knowledge available for deciding upon the content of school programs." Wittrock (1971) confronts the dilemma more directly by suggesting that while we need to think about how, when, and under what conditions students should be involved in selecting their own curriculum, we need also to think about the condition under which students definitely should not be involved.

Perhaps only a few writers, since Comte, would advocate a total separation and sequencing of the various disciplines, but the range of spokesmen between an emphasis on disciplines and a non-emphasis is large. Some believe that there are subject areas which require specific study because there is a basic sequence and convergent thinking required as a result (Bloom, 1971), while others such as MacDonald (1971) suggest that "there is no objectively discoverable curriculum to be found out there." Schwab (1964) proposes that the teaching of knowledge should be in the light of the inquiry that produced it, to discover how one body of knowledge succeeds another, to be aware of the substantive structures that underlie our current knowledge, with freedom to speculate on possible changes in structure which the future may bring. Scriven (1964) generally agrees and suggests that there may be epistemological reasons for ordering disciplines, that there are necessary and substantial learnings in the various disciplines which should come first, followed by investigation of the interrelationships among the various subjects. He contrasts the interdisciplinary approach (no common subject but a linkage of the various social sciences) with the multi-disciplinary (taking a particular problem and treating it in the different ways that professional scientists from each of the separate disciplines would), and favors the latter.

The main thesis of those who push for "discipline-centeredness" is that knowledge contained in the disciplines belongs to the school's curriculum. Phenix (1962) stated it this way: "My thesis, briefly, is that all curriculum content should be drawn from the disciplines, or to put it another way, that only knowledge contained in the disciplines is appropriate to the curriculum." King and Brownell (1966)

agree with Phenix where they state that only those who are qualified members of the discipline group of scholars should participate in curriculum planning. They would eliminate all non-discipline knowledge from the curriculum.

Bruner (1961) advocates the structure of the discipline as the basis for the design of the curriculum, and while he likely would be more comfortable with Schwab and Scriven's preferences for the place of disciplines in curriculum-building, his formulations and curricular design efforts place emphasis on intensiveness and depth of investigation by students rather than on extensiveness and coverage.

Downey (1960) recommends that study in a subject area should result first in the acquisition of skills, attitudes, and disciplined habits necessary for the discovery of new knowledge in the field, and second in the acquisition of the most useful fund of information possible within the limits of time available for the subject.

Taba (1962) feels that each area of knowledge has two characteristics; it has its own fund of acquired information and a specialized method of inquiry or a strategy for acquiring this knowledge. She supports the structure of knowledge principle by stating that every discipline has four levels of knowledge. (1) specific facts and process, derogated by many, but which in fact constitute the raw material for ideas; (2) basic ideas and principles--causal relationships which provide the learner with control over a wide range of the subject matter, help the learner organize the relationships between facts, and provide the context for insight (she acknowledges a great difficulty in securing agreement as to what constitutes basic ideas and principles from a given field); (3) concepts, which are complex sets of abstract ideas which form the basis for succeedingly

more complex looks at a discipline; and (4) thought systems, which are propositions and concepts and interlocking principles. She continues by stating, "The problem of organizing the curriculum and teaching so that learning leads to disciplined thought is a critical issue of education today, especially at the secondary level."

The emphasis on separation of disciplines led to departmentalization based on the assumption that disciplines have an inherent coherence and that a prolonged study is necessary to achieve a disciplined way of thinking about the subject. The abandonment of emphasis led to interdisciplinary curriculum efforts or the integration and possible blurring of disciplines. Taba (1962), in defense of integration, suggests that while the integration move has been guilty of vagueness and imprecision, these characteristics are not inevitable. She suggests that contact is needed with materials from a variety of subject areas around a single focus. Also associated with approaches that would focus on integration while ensuring stress on the methods of inquiry associated with the disciplines are Goodlad (1963) and Tyler (1958). Parker and Rubin (1966) attempt to resolve the problem of content vs. process dichotomy. According to them, process should be regarded as content in curriculum design. They set forth four tasks of the curriculum worker: (1) a retooling of subject matter to illuminate base structures and to ensure that knowledge which generates knowledge takes priority over knowledge that does not; (2) an examination of the working methods of the intellectual practitioner (biologist, historian, political scientist) for the significant processes of their craft and the uses of these processes in classroom instruction; (3) the use of the evidence gathered from a study of people

doing things, as they go about the business of life; and (4) a deliberate effort to school the child in these conditions for cross application of the processes he has mastered elsewhere.

It was the Progressive Education Movement that was the primary force behind a curriculum reform movement at the secondary school level. Changes such as the following occurred: (1) conventional courses were revised to deal with student concerns; (2) students were invited to share in deciding topics to be studied; (3) history, geography and civics became social studies; (4) English replaced grammar, spelling and literature; (5) science enveloped biology, physics, and chemistry; and (6) in many cases math and science or social studies and English were fused.

Another example of reform was the core curriculum which focused on common problems, with subject matter brought in only as needed to help examine the problem. Both content and methods were problem-centered and values clarification received high priority. Natural outgrowths of the reform movement were block-time scheduling and interest grouping. Vars (1972) cites the results of the Eight Year Study as vindication for the curricular reforms and his review of more recent studies showed that block-time students do as well as or better than students in separate subject-matter classes in learning subject matter and basic skills.

The lessening importance of the separate disciplines as the "stuff" of the curriculum and the corresponding increase in student-selected content and process is yet another issue which for now must be settled on the basis of values. Empirical evidence does not provide a tilt in either direction. Perhaps it is not an issue about which generalizations

will long stand. Instead, the time and context in which the issue is being resolved are more telling than any inherent correctness of a position.

As has so often been the case, there are two extremes (structuring curriculum on the basis of subject matter vs. structuring curriculum on the basis of student interests) and a broad middle ground with proponents attempting to mix a palatable and sensible blend. In the case of EBCE, operational characteristics and thus implied assumptions about the issue indicate that the designers have chosen student preferences as the focus of learning content. In contrast with the "free-school" movement, however, EBCE provides a structure within which students make their decisions.

Teacher Role

> The development of the student's self-concept and value system via personal explorations and decision-making should be a primary goal of the teacher.
>
> Helping a student to learn how to learn, to ask appropriate questions and acquire and use information is more beneficial than expertise in a given subject-matter area.
>
> The teacher, insofar as is possible, should be non-judgmental toward student-generated ideas and values--one who listens, questions, and empathizes.

According to Biddle (1969), the wide variety of methods and concepts that have been used in studies of teacher-role performance has made it extremely difficult to summarize results. As would be expected, there is a wide variety of viewpoints on the preferred primary role of teachers. While teacher roles are usually observed to be blends of many styles, it is possible to dichotomize them as

(1) primarily directive, outcome-oriented, and judgmental toward results; as opposed to (2) primarily non-directive, process-oriented, and non-judgmental as to results. Such a dichotomy is not entirely satisfactory. Dewey (1916), for example, contends that the most important part of the teacher's work is developing habitual use of the methods of experimental inquiry (the scientific method) in the behavior of students. In this instance, both an outcome and a process are implied.

The directive approach has apparently been the most popular in schools. Flanders (1965) concludes from his several studies that classroom interactions can be summarized by what he calls the "two-thirds rule." That is, about two-thirds of the time in the classroom, someone is talking; about two-thirds of the talking is done by the teacher; and about two-thirds of the teacher talk is direct. By "direct" he means teacher behavior which criticizes, gives directions, or provides the student with information.

Advocates of the directive approach may assume that learners are generally undisciplined, ignorant, or both. Taylor (1911), for example, asserted that "the best progress is made when...a definite study hour or period can be assigned in which the lesson must be learned. Most of us remain, through a great part of our lives, in this respect, grown-up children, and do our best only under pressure of a task of comparatively short duration."

It is quite possible to be a proponent of a directive teacher role and not hold such a negative view of the learner. Most theorists who subscribe to the "behavior-control" approach to instruction would place the teacher in a directive role. For example, Ryans (1965)

describes the functioning of the teacher as information processing, information rewarding, and information control. Further, teachers must motivate, diagnose, reinforce, present, explain, demonstrate, organize, plan, manage, evaluate, and advise. Thus the teacher must select, prepare, and transmit information. The student's role in this scheme is that of acquiring and processing the information that is provided.

Similarly, Fattu (1965) gives the following as significant domains of teacher performance: (1) knowledge of the subject field, including all of Bloom's taxonomy, not just knowledge domain alone; (2) ability to inspire and motivate students--counseling and understanding, encouraging them to achieve goals, seeing that they experience success; (3) ability to program instruction; (4) ability to diagnose instructional shortcomings and to provide specific activities to remedy them; and (5) ability to think, act, and work like a professional. Many others, including Woodruff (1967), Gagné (1965), and Ausubel (1968), support the notion of teacher control over the organization and presentation of new material to students.

Contemporary support for the non-directive, process oriented, and non-judgmental approach may be found in the work of spokesmen for the "individual development" point of view (Rogers, 1967; Postman and Weingartner, 1971; Goodman, 1960, Maslow, 1965; and Combs, 1965). Mahan (1966) proposes that teachers should be able to stand back and look at their own behavior, possess a sense of personal security so that their intuitions and impulses can be accepted, and be able to submerge themselves, their needs, and values, and see students as they exist and act.

Flanders (1969) reviewed the various studies making substantial use of student-generated ideas and opinions and commented:

> It can now be stated with fairly high confidence that the percentage of teacher statements that make use of ideas and opinions previously expressed by pupils is directly related to average class scores on attitude scales of teacher attractiveness, liking the class, etc., as well as to average achievement scores adjusted for initial ability.

Related support may be found in the work of Erickson who stresses the formation of the self as a progression through a number of cycles. Erickson (1960) suggests eight stages of psychosocial development which are actually resolved before one can effectively meet subsequent stages. It is at the adolescent stage, achieved at varying ages, when youth is faced with the "identity crisis." According to Erickson, trust is the formation of a healthy personality and at the adolescent stage, the individual needs "confirmation" from persons other than parents who "hold to a design of life." Further, "the willingness of adults to let him experiment, their eagerness to confirm him at his best, their consistency in correcting his excesses, and the guidance they give him will co-determine whether he eventually makes order of necessary inner confusion.... He needs freedom to choose, but not so much freedom that he cannot, in fact, make a choice."

Miller (1964) found that junior high pupils in classes with responsive teachers (as opposed to directive teachers) had significantly more positive attitudes and used significantly higher levels of thinking. This was in spite of the fact that both the responsive and directive teachers behaved in a warm, friendly, supportive fashion. The two groups of teachers differed only in their manner of dealing with subject matter. Wood (1970) analyzed data on teacher behavior from

twelve grade levels and found that pupil involvement at the three highest levels of thinking tended to be associated with acceptance and amplification of ideas by other students. Experimental behavior in the Deweyan sense tended to occur with teacher warmth, acceptance, and flexibility and high teacher control tended to be associated with low-level cognitive activities.

Soar (1972), in summarizing the research on teacher-pupil interaction, states: "The larger view of the research of the past decade appears to be one in which the major trends furnish clear support for the principles of progressive education." He lists certain teacher characteristics which are "growth-producing:" little criticism of pupils; praise, acceptance, and use of pupil ideas; and a minimum of restrictive direction and control. He also pointed out some qualifications. For example, much of the research has been done in middle- and upper-class schools where research is accepted, if not welcome. Thus, these classrooms may be unrepresentative. Further, there apparently is an optimum balance between responsive and directive teaching styles for "too much freedom (indirectness) and too little criticism do result in decreased pupil achievement gain and in increased anxiety as well." McKeachie (1974) made a similar point by citing the emerging evidence that "social class moderates instructional effects.... The lower-class child responds better(on the average) to didactic teaching, with explicit requirements and close-coupled rewards. Problem-oriented, ego-motivated, supportive methods of teaching...seem to benefit only a middle-class clientele."

In summary, the available data provide qualified support for EBCE assumptions 2 and 4 above. There is the ever-present caveat that the

appropriate design of procedures for use in instruction (including the teacher role) depends on the characteristics of the student, the situation, and that which is to be learned. Little can be said about Assumption 3--that knowing how to learn and being able to demonstrate this to students is more beneficial than having subject-matter expertise. If they were mutually exclusive conditions, most educators would choose the former. But since they are not, the possession of both seems highly appropriate.

Student Role

> Learning is more efficient and permanent when the learner has committed himself to a set of activities and outcomes than when such activities and expected outcomes are assigned.
>
> Most secondary school students are capable of assuming responsibility for the initiation, direction, and conduct of their learning.
>
> Most secondary school students are capable of receiving, interpreting, organizing and reorganizing in a systematic way knowledge which comes about through self-initiated and planned subject-matter explorations and do not require pre-organization and sequencing of new material.

While Assumptions 5, 6, and 7, are of crucial importance, they are essentially the inverse of assumptions concerning role of the teacher. Therefore any analysis would necessarily be redundant with the prior section, as well as with the next section which addresses learning methods.

Types of Learning Methods

> Very often, the best solutions to the facilitation of learning are those that emerge and evolve from the processes of planning, performing, and replanning.
>
> Experience-based learning, in which the student is to acquire concepts and principles via problem-solving techniques, is the best approach for many

secondary school students. The amount of guidance provided by the LC to ensure informed decision-making by students, quality of learning plans, integration of experiences and knowledge and related reading should vary as a function of student need.

Two primary issues arise from these assumptions. The first is that the learning process itself includes planning and selection of objectives and content, selection of means, performance, evaluation, and replanning--with all processes the primary responsibility of the student. The second issue is a natural corollary--one that limits by design the amount of guidance from the teacher and instead places reliance on experiential learning. As the various viewpoints and available data are presented concerning these assumptions, it will become apparent that it is literally impossible to discuss learning methods while avoiding previously presented analyses related to objectives, to entering behavior, and to roles. Thus, some redundancy is to be expected.

The problem of how to master facts, ideas, and concepts has been debated for a long time in education. While learning facts is a matter of arbitrary association (Brownell and Hendrickson, 1950), acquiring abstract ideas and concepts is a different matter. They must be invested with meaning by the learner if they are to be understood at all (Taba, 1962). Learning then, according to Dewey (1938), involves a transactional experience--later referred to as discovery learning (Bruner, 1961, and Taba, 1962). Both imply active learning. Suchman (1961) postulated that concepts are learned best by using the inquiry method.

As previously pointed out, learning can be viewed as: (1) coercive (i.e., authoritarian, over-directive, forced)--the emphasis here is on

the receptiveness of the mind; or its opposite, (2) unguided or laissez-faire (i.e., no prescription, direction, anchors, or guides to behavior, with the emphasis on self-acting.) A third and a middle ground has been termed "guided learning." This is often differentiated from other types of learning by its consideration of the particular nature of the learning task and the characteristics of the learner.

Many advocates of the Progressive Education Movement as well as contemporary critics of existing educational programs would be close to the laissez-faire approach. Skinner (1938, 1948, 1957), and those associated with the programmed instruction movement, as well as theorists working with behavioral modification techniques (Bandura and Walters, 1963; Krasner and Ullman, 1965), and close to coercive or at least over-guided learning. Dewey's formulations suggest close proximity to the guided learning positions.

EBCE may be identified as lying within this middle area. In order to examine EBCE within the context of guided learning, a definition is needed. Torrance (1966), in summarizing various meanings, suggested that in guided learning the learner is self-acting and creative, requiring direction and guidance, but not dictation and coercion and that guidance helps learning to be a continuous process. He continued by suggesting that human intelligence consists of many functions which are developed through learning experiences, which operate differently depending on the tasks, and may develop at differing rates and levels. Further, while structure of learning tasks is

important to all learners, the amount of needed structure will vary among learners. Finally, according to the various proponents of guided learning, effective learning is most likely to occur when learning tasks are arranged in some sequence appropriate to the learner, even though learning may be accomplished through a variety of instructional means.

Most persons knowledgeable about EBCE would agree that these points, with the exception of "sequential arrangement of learning tasks appropriate to the learner," are consistent with EBCE. Both of the assumptions under discussion in this section conflict with this statement. It can be assumed that some form of guided learning, for most students, is more effective than no guidance at all, as well as more effective than coercive learning. The important issue then is the kind of guidance to be given to the learner. As the amount of guidance decreases, the closer one comes to the experiential learning as defined by Rogers (1967). Thus, for purposes of this section, experiential learning is defined as an extreme position of the guided discovery approach.

Many advocates of discovery learning (Taba, 1963) suggest that not everything should or can be learned by the discovery learning method, since it is very time consuming and limits the scope of coverage. Instead, such approaches as deductive methods, logical inference, or some form of expository teaching are recommended. Bruner (1961) gives four advantages of discovery learning: (1) it increases intellectual potency; (2) it increases intrinsic motivation; (3) it teaches the student techniques of discovery; and (4) it results in better retention. However, other studies (Gagné and Brown, 1961; Corman, 1957) have

shown that adequate guidance is the prerequisite for learning, and Cronbach (1966) believes that many experiments with discovery learning have "stacked the deck" against expository teaching.

Ausubel believes that as the age and sophistication of the learner increases, the necessity for discovery learning decreases. He suggests that at the junior high-secondary level, more subject matter structure is needed.

Most of these writers, while positive toward discovery learning, view the teacher as the manager and arranger of conditions by which discovery learning occurs. Both the teacher and the student play an active role in the process. EBCE takes a more extreme position by placing the student in the forefront of the process while the teacher, as a questioner and a facilitator, has a less prominent role in the learning process. For this degree of student activeness and control, support can be found in the writings of Dewey (1916), who wished the student to select the materials and the activity and to study real things, Rogers (1967),* who argues for experiential learning and Neill (1960). Rogers sees experiential learning as personally involving, self-iniated, pervasive, and evaluated by the learner. He bases his support of experiential learning on the assumptions that (1) humans have a natural potentiality for learning and the desire for learning can be trusted; (2) much significant learning is acquired through

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* It is not implied that Dewey, Neill, and Rogers are in total agreement concerning student control. Dewey, for example, would insist that the student's experiences must be useful and the prerequisite learnings are often essential. Similarly, for Bruner and Taba, each discipline contains powerful and pervasive organizing concepts and principles which must be used in instruction.

doing--by coping with a problem directly confronting one; (3) learning is facilitated when the student participates responsibly in the learning process, chooses a direction, helps discover learning resources, formulates problems, decides a course of action, and lives with the consequences of these choices; (4) self-initiated learning, involving the whole person--feelings as well as intellect--is the most pervasive and lasting; (5) creativity in learning is best facilitated when self-criticism and self-evaluation are primary; and (6) the most socially useful learning in the modern world is learning the process of learning.

Friedlander (1965) stresses the importance of individual differences in choosing whether a discovery learning approach is appropriate. Kagan et al. (1964) also suggest that differences in modes of thinking (and thus differences in learning styles) may be related to more or less stable personality dimensions which he labels "analytic and reflective" attitudes.

The goal of this approach is to provide attractive alternatives from which the student makes generalizations and discovers meaning. While Bruner (1966) describes discovery as a matter of rearranging or transforming evidence and believes this occurs best when the learner actively gathers and processes data, Suchman (1961) states that discovery involves the sudden assimilation of perceived data into the existing framework of a student's conceptual system, and that for this to happen the student must be more active and aggressive in the learning role. According to Hendrix (1961), only those generalizations which have emerged from a student's own discovery experiences can play a "dynamic part in the learner's later behavior."

Nuthall and Snook (1973) summarized this importance as follows:

> When a student is led to discover a generalization, he does not learn only that generalization; he also learns from the process of discovery itself. The psychological processes involved are said to be similar to the processes involved in any problem-solving situation. Hence, when discovery methods are used, the student learns how to explore a situation for himself (Bruner, 1966), how to go beyond the information given in a situation, and how to behave in a scientific manner and think in an inductive style (Wittrock, 1966). The student is said to develop an "organizing scheme" for his own cognitive activity and an expectation that learning is something which is primarily self-directed (Taba, 1963).

Taba (1963) suggested that so-called progressive practices tended to understress the role of content. In contrast, those who defend the primacy of content have overlooked the importance of cultivating active mental processes. Learning by discovery seems to bring process and content into a "transactional relationship."

According to Nuthall and Snook (1973) the view of learning implicit in discovery learning or in Roger's version of experiential learning is quite different from the view of learning that underlies the behavior control model. This is because there are no trials and presentations of the thing to be learned. In the discovery process, for example, it may not be at all certain exactly what an individual is learning, which makes it difficult to determine how, or even if, learning and forgetting are occurring.

Nuthall and Snook suggest that the psychological theory used by advocates of the discovery learning model is derived from experimental investigation of concept attainment and problem-solving (Bruner, Goodnow, and Austin, 1956), from studies of creative thinking and from the research on intellectual development initiated by Piaget and co-workers. The specific connection between Piagetian psychology and

discovery learning methods has been partly established by such writers as Bruner (1961, 1966) and Taba (1954).

What does research have to say about these two widely disparate views of the learning process? In the case of behavior control, much of the research has been centered on teaching machines and programmed learning (Holland, 1959; Keislar, 1959; Porter, 1950). A large number of studies by others was done to answer such questions as, Does the machine teach as well as the teacher? The results, according to Nuthall and Snook, have not helped to answer the right questions. However, other research focusing on specific aspects of the teaching process (e.g., immediate reinforcement, prompting, etc.) are continuing to be conducted. According to Nuthall and Snook, much of the research on behavior control has been theoretically more damaging than helpful.

Ausubel, in his theory of meaningful verbal learning, asserts that the psychological theory of the behavior-control model is the wrong kind of psychology and that behavioral psychology cannot be readily translated to school learning. Some of his research has been directed at demonstrating that the laws which apply to rote verbal learning do not apply to the learning of meaningful educational materials. (Ausubel and Blake, 1958; Ausubel, Stager, and Gaite, 1969).

Basic to criticisms of the behavior-control model is the attempt to apply a laboratory-based conceptual system to the outside world. According to Ausubel, the shaping of educational tasks to fit the laboratory needs does substantial damage to the nature of the educational tasks.

What about discovery learning? Criticisms of the behavior-

control model are equally valid for discovery learning methods because most of the research has consisted of the favored method (discovery learning) being compared with, say, expository teaching with the criterion measure perhaps more related to discovery learning. More recently, according to Kersh and Wittrock (1962), more attention in research has been paid to such things as motivational effects (Kersh, 1962) and varying amounts of guidance and direct and transfer learning criteria (Wittrock, 1973).

Ausubel (1963) believes that the adherents of discovery learning make several unsupportable claims. Among these are: that the discovery method is the best method for transmitting subject matter; that problem-solving is the primary goal of education; that there can be training in the techniques of discovery; that every child can become a critical and creative thinker; that expository teaching is authoritarian and that discovery methods are unique generators of motivation and self-confidence. He believes that the primary purpose of teaching is to present in some systematic way an organized body of knowledge.

Suchman (1961) conducted research in which he attempted to identify generic, highly transferable skills, such as universal skills of inquiry or skills in problem-solving. But, according to Taba (1962), "How generic such intellectual skills are, and how independent they are of the particular context in which they are acquired, is as yet not too clear."

According to Wittrock (1966), there is still much conceptual confusion in the typical description of discovery learning. But in the view of this writer, the very difficulty lies in the close relationship

between the objectives being sought and the means for acquiring them. The kind of research with which the behavioral psychologist is familiar is exceedingly difficult for the discovery learning researchers. Means and ends frequently do not lend themselves to differentiation.

Friedlander (1965) describes concerns about the rationale for the discovery learning method. He points to the frequency of student failure and error which may lead to student confusion. He further suggests that it is unreasonable to assume that all students have the powers of judgment and evaluation needed to assess their own intuitive leaps or reasoning. Friedlander also claims that there is no hard evidence that insights which a student develops on his own are remembered any better than insights which are learned from others. Friedlander also expresses doubts about relying on student interests as the method by which content is selected and sequenced. He claims that interests are often nothing more than curiosity and thus may be somewhat ephemeral and satisfied easily without adequate learning taking place. Wittrock (1966) claims that research has not isolated the effect of discovery itself on learning.

Kersh and Wittrock (1962) observed that most research on discovery learning provided opportunities for reinforced practice following a treatment period and that with sufficient amounts of reinforced practice almost any teaching method will work. Gagné and Brown (1961) investigated with three groups the effects of (1) rule and examples, (2) a discovery method, and (3) a guided discovery method of principle learning. The results showed that the best solutions were obtained by the guided discovery group, the worst by rule and example, and the discovery group was in the middle.

In summary, according to DeCecco (1968), for the learning of problem-solving, a high priority goal of EBCE, certain procedures and conditions are essential. They are (1) knowledge of the performance expected, (2) assessment of student entry behavior for the concepts and principles they will require in the solution of the problem, (3) invoking the recall of relevant concepts and principles, (e.g., the use of advance organizers is seen by DeCecco as a convenient method of verbal mediation), (4) providing verbal direction for the student, and (5) verifying student learning by requiring a full demonstration of the problem solution.

What can be made of the foregoing? In the case of the behavioral control model, the educational process is one in which the learner's diet is carefully planned, prepared, and administered in a prescribed sequence--assumedly because the care and feeding of learners is too important to society to be left to chance, or the learner is believed to be incapable of wise selections, or the chef believes there is only one perfect menu.

Moving away from this position to discovery learning, the diet may be planned, prepared, and laid out, but the learner must help himself, must master the tools necessary to take in the educational sustenance. Moreover, the learner must express opinions about the fare, critique the process, and evaluate the results.

Since discovery learning has been defined in terms of the degree of teacher intervention, the process itself may be practiced differently. Another type of discovery learning might consist of a variety of useful and palatable learning topics from which the learner selects and takes in a chosen order (much as a well-planned smorgasbord). Since learners'

tastes vary, they may gorge themselves on grapes and avoid meat. If discomfort sets in, the learner may then choose a more balanced educational diet or a diagnostician may recommend changes.

A final and most extreme position might be one in which the learner is simply told to forage for himself, but with the condition that he discuss his experiences with another. The EBCE approach lies generally between the second and third of these positions with the exact location determined by the amount of LC guidance.

Although there is ample theorizing for each of the positions, there is insufficient data to warrant a selection on empirical grounds alone. For example, there is a considerable body of data dealing with issues surrounding the behavior control approach, some of which is supportive. But to be able to describe how learning takes place does not necessarily permit one to prescribe how to organize for this learning--unless the same conditions that prevailed in the experiment are satisfactory for an educational program. There is the generalization problem.

On the other hand, attempts to buttress discovery learning or experiential learning have often focused on effects such as motivation. While the results are often supportive in that student motivation is higher, measurement of cognitive growth has not been often found to be improved (Spotts, et al., 1974).

One is left with the strong feeling that the best way of educating students is some combination of various approaches depending on the nature of the content to be learned and the characteristics of the student. The question of which to choose may be partly resolved, not by empirical research, but in the arena of discourse. That is, which approach to content selection and organization is chosen will

depend to some degree on which comes closest to fitting one's view of the learner and the learning process. If the learning process is seen as shaping learners to fit a societal mold, the behavior control model may likely be selected. But if the learning process is seen as awakening young minds to their full, uncluttered, creative potential, free from conventional wisdom, the "forager" principle could be invoked. This leaves the vast middle area where most educators and programs (including EBCE) appear and which tend to blend the extremes in varying degrees.

In summary, the issues surrounding the selection and organization of curriculum content are not clear-cut. There seems to be a trade-off factor at work. For example, given clearly stated outcomes, learning can be efficiently and effectively organized to produce these outcomes by using techniques contained in the behavioral control model. But what loss in student motivation, retention, continuing interest in learning, and growth in autonomy and self-knowledge occurs as a result?

Student Grouping

Opportunities for students to work both individually and with peers should be available.

Student groups should be formed on the basis of mutual interest rather than age, grade level, ability, or achievement.

For over a century, group teaching of grade-level classes has dominated instruction in elementary and secondary schools. But more recent efforts to individualize instruction have reduced to subordinate status most grouping procedures (Heathers, 1969). For the most part, however, there has been almost no research on the effects of grouping at the high-school level. And most studies, according to Heathers, were so poorly designed that results could not be called

conclusions. According to Goodlad and Anderson (1963) some evidence exists that high and low achievers benefit from ability grouping. In EBCE, with learning tasks individualized, grouping is not a critical issue. In those instances when group projects or work occur, grouping is organized primarily on the basis of mutual interest.

An extremely interesting and relevant line of research (Johnson and Johnson, 1974) has investigated the effects of cooperative, competitive, and individualistic goal structures. This research has attempted to determine the contexts in which students benefit most from the various structures. Their conclusions, from a review of the research, included the finding that cooperative goal structures (and thus grouping of some type) should be used when instructional objectives focus on such cognitive and affective outcomes as: problem-solving effectiveness; group productivity; memorization and retrieval of information; competence in cooperative situations; cognitive development and its related areas of social adjustment; communication effectiveness, autonomous moral judgment and empathetic ability; positive attitudes toward subject areas, instructional activities, teachers and other students; reduction of prejudice and the appreciation of cultural and individual differences; development of positive self-attitudes and a belief in one's basic competence and worth; development of interpersonal skills; and development of behavior based on intrinsic motivation.

A cooperative goal should also be used when educators wish to emphasize such things as: a moderate level of anxiety, positive interpersonal relationships and the related cohesion and psychological support among students; trust, and mutual influence promoting achievement and task orientation; sharing of ideas and materials, and mutual

helpfulness; involvement in instructional activities and tasks; coordination of efforts and division of labor; and divergent and risk-taking thinking.

The authors suggest that the use of individual goal structures is not clarified by the research, but acknowledge success of programmed learning materials and mastery programs for the learning of specific cognitive material and skills. They also suggest that occasional use of competition is appropriate, particularly with simple drill activities, spelling, vocabulary, and any low-anxiety situation where it can be used as a source of fun, excitement, or release of energy. One can easily conclude that Johnson and Johnson see most instructional activities as taking place within a cooperative goal structure.

It should be noted that while the projects of EBCE students are largely individually performed, their completion requires working with others. They work with adults in the community as well as with their peers in workshops, seminars, and package meetings. Thus, some of Johnson and Johnson's conclusions are represented by the model. However, it is evident that to the extent that these conclusions are valid, very few instructional models would qualify as being consistent.

Context

Transfer of learning is best facilitated if it occurs in real-life situations rather than simulated in the classroom.

Students become less alienated from the existing society when the society is the context of learning activities.

Venn (1970) asserts that one of the great American tragedies of the past two decades has been the almost total isolation of young people from effective roles in society. He contends that the schools

must design a new approach to the curriculum which will provide a means for the student to render a service to receive pay or educational credit. When students are serving, life is no longer meaningless. They feel responsible and necessary.

According to Tuckman (1971), learning is most meaningful when people learn through interaction with their environment. Work such as that of Harvey, et al. (1961) and Anderson and Moore (1966) provides evidence for the fact that interdependent conditions for learning are the most effective. In such a model, the individual learns through interaction with the environment. However, according to Tuckman, the environment must be of such a nature as to result in the learning which is desired--it must be structured to maximize the occurrence of the desired outcomes.

Reinhart (1972) contends that a new relationship is needed which will eliminate the barriers between school and the community. He calls for members of the community to assume training roles, and for students to meet in a variety of learning environments provided by business establishments.

Research studies investigating the effects of student learning in real community settings are extremely scarce. While some research has been conducted concerning the effects of the use of community resources by cooperative-education students, the results generally showed no differences between coop-ed students and their counterparts in the classroom (Gallington and Sievert, 1966).

John Dewey is seen as being a champion of real experiences rather than artificially contrived ones. For example, he stressed the necessity of introducing vocational subjects, not to build utilitarian skills, but as "points of departure" for increasingly intellectualized ventures into

the life and meaning of industrial society (1928). Elsewhere he states, "All education proceeds by the participation of individuals in the social consciousness of the race." (1929). Most of Dewey's writing centers on the need for an active transaction between the learner and his environment (1938).

Evaluations performed with students involved in EBCE (Christensen, 1975) have not yet supported the contention that real-life learning situations enhance learning in the sense that cognitive gains of EBCE students exceed those of non-EBCE students. Planned follow-up studies of EBCE graduates may provide useful data that will help shed light on the issue of transfer. Some kinds of learning may be enhanced, but the particular form such learning takes is as yet unknown.

Perhaps the primary support for the community as the primary learning context comes from measures of student interest in their learning activities. EBCE students have consistently indicated a strong preference for learning activities in the community as compared with classroom experiences (Spotts, et al., 1974 and Christensen, et al., 1975).

Assumptions Related to Performance Assessment

Focus

Evaluation of learning outcomes should be focused on the individual learner, his progress, and the particular situation in which he is operating rather than on a group standard or norm-referenced criterion.

The emphasis here is on criterion-referenced evaluation. According to Glaser and Nitko (1971), "A criterion-referenced test is one that is deliberately constructed to yield measurements that are directly

interpretable in terms of specified outcomes." One distinguishing factor between norm-referenced and criterion-referenced tests is that a norm-referenced test allows one to say that student A can do better or more than student B, but not what student A can actually do.

It is generally agreed that recognition of individual differences among learners across many dimensions and instructional methods devised to take into account these differences have profoundly affected measurement of learning. With programs of instruction varying as a function of individualized objectives, measurement of student growth and achievement based on these objectives was a natural step. While the need for criterion-referenced measurement has been pointed out by many, (Cronback, 1963; Ebel, 1962), no substantial literature on the subject is extant (Glaser and Nitko, 1971). One study by Pack (1972) compared the effects of norm-referenced vs. criterion-referenced tests on student attitudes and found that criterion-referenced testing in which the student is not compared with others produced more favorable attitudes toward the subject matter.

The actual form of the criterion-referenced item(s) vary depending on the specific objectives. The objective can specify any learner performance that is representative of the domain which the objective addresses. For example, the learner may be expected to solve certain problems, analyze a literary passage, produce a simulation or film, build a stage set, or memorize formulas. What is important is that the learner be able to demonstrate that objective(s) on items written to be consistent with specified criteria have been mastered.

Methods

Assessing learning progress should include self-evaluation.

Students should select the method by which they will demonstrate what they have learned.

Studies by McClelland (1953), discussed earlier, indicate the value of learner involvement in evaluation of progress. It would seem that this condition holds regardless of the nature of the instructional program. Even in a situation which is teacher-dominated in terms of content, sequence, and presentation, student involvement with evaluation would be appropriate. Determining whether or not students should be permitted to select the method by which learning is to be demonstrated must be based on one's view of the student's role in the learning enterprise. It is an issue related to the theory one holds about learning and has not been addressed empirically.

Standards

Subjective judgment of the quality of student work is an appropriate and, in many cases, the only approach that can be used. Because standards should be tailored to the student, to the project, and to available resources, it is not feasible to prespecify objective standards.

The use of objective tests has been criticized often (Black, 1963; Gross, 1962; Hoffman, 1962). Frequently-voiced criticisms include (1) that they measure rote recognition of trivial items of knowledge; (2) that correct answers are sometimes identifiable by means of unintentional bias; (3) that correct answers in multiple-choice items may be arbitrary or depend on abstruse hair-splitting; and (4) that they favor the glib, confident, impulsive, and test-wise

student.

Ebel agrees partly by suggesting that:

> Exclusive reliance on tests, for example, may give an unfair advantage to students who have special test-taking skills and may unfairly handicap students who give the best accounts of their achievement in discussions, on projects, or in other situations. But irrelevant accomplishments, such as mere glibness, personal charm, or self-assurance, should not be mistaken for solid command of knowledge. Nor should much weight be placed on vague intangibles or subjective impressions that cannot be quantified reliably.

On the other hand, overreliance on subjective judgment introduces certain possible negative conditions. Popham (1972) avidly supports the use of explicit behavioral objectives, partly in order to permit accurate measurement of learning. In other words, reliance on subjective judgment of learner outcomes makes it easier to avoid the formulation of explicit objectives. Evaluator bias (Gephart and Antonoplos, 1972) is another negative aspect of subjective valuations. For example, bias can be introduced by the tendency for raters to obscure intra-individual differences by rating a given individual in the same way on all behaviors, by allowing an overall impression of a subject to influence judgment. Additionally, it is a well-known fact that teachers (or any set of raters) can vary widely in their judgments of the worth of student productions in a non-objective test situation.

Grading

> Assessment of learning outcomes should be based on criteria which have been specified in advance, tailored to the student's goals and abilities, and are well known to learners.

Arnstine (1964) raised the point that programmed instruction was basically undemocratic because it spelled out in advance how the learner

was supposed to behave after instruction. Some would disagree with Arnstine on the grounds that education is not necessarily democratic anyway, and that prespecification prevents deviation from societally-mandated goals (Popham, 1972). Since the EBCE model prescribes not only prespecification of outcomes, and therefore public knowledge of purposes, but also involves students in the development or selection of outcomes, this objection is not pertinent. Another expressed objection (Eisner, 1969) suggests that prespecification prevents the teacher from taking advantage of learning opportunities unexpectedly occurring. While this accusation can be leveled at programmed instruction or any self-contained program of learning, EBCE's general design, which includes use of student-developed projects that are changeable, eliminates this potential problem. In summary, while there are cases where expected outcomes are not prespecified (e.g., a laissez faire school where outcomes are whatever happens), there is overwhelming support for public knowledge of outcomes when they have been specified in advance.

The general subject of evaluation has received considerable attention during the past decade and has reached the point of almost becoming a separate discipline from measurement and research. There is rather common agreement among these writers that an evaluation program for school learning should have certain characteristics: (1) it should be consistent with objectives; (2) it should be comprehensive enough to adequately sample individual outcomes; (3) it should have diagnostic value and distinguish between levels of performance; (4) as a whole, it should pull together judgments to provide a general picture of accomplishment rather than isolated fragments; and (5) it should be

a continuous and integral part of curriculum development (Taba, 1962). Ausubel (1969) would add discriminatory power to this list so that individuals who vary with respect to trait or competence could be distinguished. Ausubel adds that frequent progress monitoring of student learning facilitates student learning because it forces the student to review, consolidate, clarify, and integrate subject matter. Fitch (1951) and Ross (1944) also agree that exams play a significant motivational role and facilitate learning.

Thus, while EBCE assumptions are generally consistent with evaluation theory as expressed by its spokesmen, the emphasis placed on the use of evaluation procedures to diagnose student learning as well as frequent testing as a motivational device or as a means of encouraging students to organize what they have learned for playback would be inconsistent with the EBCE model.

Chapter Summary

This chapter has presented a detailed analysis of each of the EBCE assumptions. The literature has been used extensively to examine them in terms of the extent and kind of support that exists. The analyses attempted to present the data such that divergent points of view, as demonstrated by data, could be revealed. Where EBCE is positioned in terms of existing theoretical formulations, where certain assumptions seem to be insufficiently tested or possess questionable validity, and a discussion of EBCE as a theory of instruction is presented in the final chapter.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

Chapter IV concluded the examination of EBCE assumptions concerning their basis in theory and research. The purpose of this final chapter is to summarize those findings in terms of EBCE's status as a theory of instruction. In doing so, there is no intent that this summarization will account for all that goes on or should go on in the teaching/learning process. For example, Gage (1964), points out that training takes in "far too many kinds of processes, of behavior, of activity, to be the proper subject of a single theory...." Since the EBCE assumptions deal with behavior and conditions pertinent to the teacher, the student, the nature of the curriculum, and the environmental context, Gage's caveat is even more appropriate.

Even so, when the resources required to build a comprehensive educational program are considered, it seems very reasonable to engage in theory building. Gage (1963) supports this position by stating, "...all men, including graduate students, are theorists. They differ not in the degree to which they use theory, but in the degree to which they are aware of the theory they use. The choice before the man in the street and the research worker alike is not whether to theorize, but whether to articulate his theory, to make it articulate, to get it out in the open where he can examine it."

It is possible to view theories as goals or ends. It is also possible to view theories as means. As Guba and Getzels (1955) put it, "...a theoretical framework sharpens research objectives,...

aids in interpreting meaningful data even if insignificant, and makes research cumulative from one study to another." It is the latter, theory as means, with which this study has been concerned.

While one of the major purposes of theory is to guide and sharpen research in order to test the theory, theory can also be discovered or developed from data. Glaser and Strauss (1967) state, "We believe that the discovery of theory from data--which we call grounded theory-- is a major task confronting sociology today." The basic theme of their approach is the discovery of theory from data systematically obtained from social research. Their recommendations seem equally appropriate for education.

Further classification is possible. Theory may be defined not only in terms of its intent but as to its type. Snow (1973) suggests that theory defined formally by the specifications of its characteristics (i.e., including presumptive hypotheses, a set of equations that specify operations, a dictionary of empirical definitions, and a model that interprets the calculus of the theory) is not necessarily the best approach to research on teaching. He distinguishes six grades of each kind for behavioral and social research. However, he feels that some lower-grade theories may prove to be more valuable in the long run than statements from a higher level. His six types are:

1. A-theory (Axiomatic theory). The highest form of theory possessing a set of concepts with the help of which all its remaining concepts can be defined, and a set of primitive statements or axioms for which all remaining statements can be derived as consequences. This grade of theory, according to Snow, imposes demands and yields not often met in educational and psychological theory.

2. B-theory (Broken Axiomatic theories). Snow suggests two kinds of B-theory: formal theories "on the way out" and growing theories for which complete formalization has so far been sacrificed in favor of inventiveness. Growing theories may be eclective in that they have borrowed useful portions of formalized theories for recombination in the education arena. Such B-type theories, according to Snow, may be the highest form of theory found in research on teaching for some time.

3. C-theory (Conceptual theories and constructs). When new concepts are proposed to simplify the explanation and description of relationships among variables and validation of these concepts is fairly consistent, the construct takes place in a network of related concepts invoked regularly to account for findings (e.g., evolutionary theory, psycho-analytic theory, and motivation theory). Snow states that extensive validation over years of time results in the theory becoming reified--such as the construct of intelligence.

4. D-theory (Descriptive theories and taxonomies). Systematic description of phenomena through classification and discrimination produces theories that are below C-theories because they do not introduce new hypothetical constructs for explanatory purposes, e.g., the taxonomic work of Bloom (1956), Guilford's Structure of Intellect (1967), and Gagné's listing of types of learning (1970). They are, however, important in advancing theory and research.

5. E-theory (Elementisms). First steps in theory development usually occur through logical or empirical analysis of some phenomena. For example, McDonald and Allen (1967) developed a list of technical skills of training by defining elements of teaching skills that could

be modeled and reliably recognized. Further, the specification of behavioral objectives, the identification of instructional steps, and teaching acts are vital steps in research and theory development. Although they do not constitute an integrated understanding of the nature of educational outcomes, the course of meaningful learning, or the process of teaching, Snow asserts that the analysis of phenomena into elements of components has been a key to the advancement of science.

6. F-theory (Formative Hypotheses). Hypotheses are the basic ideas and expectations with which research begins. While some hypotheses are testable and some are not, their preservation and dissemination are important. New technologies sometimes make formerly impossible operations possible.

When EBCE is juxtaposed against these levels of theory, the fifth level (elementisms) seems a fair fit. The EBCE model specifies intended outcomes and identifies the various procedures, roles, environment, etc. by which instruction is to be conducted. Thus, it seems entirely reasonable to make use of the data collected for analysis of EBCE assumptions to attempt a synthesis-- to propose the EBCE model as one theory of the instructional process and summarize the data concerning its assumptions as a test of the theory. Based on the data, judgments are made concerning the validity of assumptions and depending on the relative strength of the data, indicate where empirical data seems adequate, where it seems inadequate for the assumption(s) and further research is indicated.

The analysis of EBCE has required that the points of view concerning the purposes of education as well as the means selected for conducting education be examined. For one's point of view

concerning purposes begins to shape and, in some cases, to restrict the means.

Because various views concerning purposes of education tend to form a continuum, it has been convenient to use classification systems throughout the analysis. This will be continued here by adopting four labels proposed by Black (1952) which are quite similar to those previously used. The definitions have been slightly modified.*

1. The Traditionalist approach is concerned with the transmission of the cultural heritage.
2. The Learning Product approach emphasizes the transmission of the cultural heritage but takes the individual learner into account.
3. The Learning Process approach emphasizes the individual but recognizes the school's role in the transmission of the cultural heritage as well as in transforming culture.
4. The Progressive approach is primarily concerned with the growth of the individual.

The data concerning assumptions are briefly summarized and identified with one or more of the four labels.

Summary of Literature Review and Analysis

Source and Content of Objectives.--The EBCE model can be identified with both the Learning Process and the Progressive labels. The learner is permitted to select personal objectives, but within a preorganized framework of general objectives. Thus the model seems to be supported in part by those writers who advocate the culture-transforming purpose of education (Dewey, 1916; Kilpatrick, 1935;

* The third definition was expanded to include the notion of transforming culture as a purpose of education.

Counts, 1932; and Smith, 1950), by those who are more specific in their recommendations for objectives being derived from existing conditions (Tyler, 1964; Parker, et al., 1962; and Goodlad, 1966), and by those who place primary emphasis on individual development (Rugg and Shoemaker, 1928; Rogers, 1967; and Postman and Weingartner, 1971).

These assumptions would be rejected by those who emphasize the disciplines as the content of objectives (Adler, 1958; Hutchins, 1936; and Bestor, 1955); or who believe that the content of learning must be carefully organized and presequenced (Gagné, 1968; Woodruff, 1967; Ausubel, 1968, 1969; Skinner, 1968; DeCecco, 1968; and Glaser, 1965) and therefore must be pre-selected.

The issue is over the amount of external or internal control of objectives for learning. Resolution of the issue can, at present, be made only on the basis of a value choice between (1) exposing students to an agreed-upon curriculum under teacher control with some assurance of what and how much learning is occurring, and (2) exposing students to a curriculum they select, with some assurance of sustained interest, but with less knowledge of what and how much learning occurs.

Sequence of Objectives.--The model's assumption dealing with sequence of objectives based on the students' interests and perceived needs seems clearly consistent with the Progressive point of view. Why this is so is presented in the sections concerned with motivation, organization of learning, and student readiness.

Level of Specification.--The specification of long-range goals, shorter-range objectives, and how attainment will be demonstrated appears to have almost unanimous approval by educational spokesmen.

Thus, this assumption can be identified as being consistent with all four labels.

Empirical support for having goals and objectives exists both for learning benefits (Mager and McCann, 1961) and for motivational reasons (McClelland, 1965).

There is considerable controversy concerning the extent to which specification should go. The EBCE model's position is most closely aligned with such writers as Ebel (1965), and Eisner (1969), who see risks in over-specification. They are concerned with issues such as overconformity, difficulty of preparing objectives in all subject areas, problems of predicting what educational outcomes should be, and the notion of shaping behavior according to preconceived notions. Others (Popham, 1969; Mager, 1962; Lindvall, 1964; Tyler, 1964; and Gagné, 1968) believe it is necessary to state objectives at a highly specific level including what the student is to do and the conditions under which the performance is to occur. For the latter group, the primary issue is not one of values per se, but one of being able to organize the curriculum in such a way that learning progress occurs in an organized, sequential, and efficient manner. Assumptions concerned with level of specification do not lend themselves easily to being classified as belonging to one or more of the four labels. The first assumption seems consistent with all four points of view, while the second is most likely classified with the Learning Process label. With regard to the second assumption concerning the degree of specification, its validity seems to depend on the importance educators place on "systematizing" learning vs. providing an environment in which students "do their own thing"--within limits.

Readiness for Learning Tasks.--The model's assumption concerned with learner readiness rejects the idea that it is necessary to first

diagnose the learner's status and then prescribe learning activities based on an inherent logical sequence of the subject matter. Nor is it feasible when the student is permitted to select his own content, to pre-select content. Thus, the model also rejects the view of the teacher as the controller and manager of the learning enterprise. Such a view is held by theorists and researchers who advocate a more or less "behavior control" approach to learning (Glaser, 1969; Skinner, 1968; Gagné, 1968; Stolurow, 1965; DeCecco, 1968; and Ausubel, 1969). Instead, EBCE assumes that the motivational benefits of student involvement in selection outweigh any increased efficiency of a sequential organization of content. Such earlier writers as Dewey and more contemporary writers such as Rogers provide the philosophical basis of the model's stance. Again, the Learning Process and the Progressive points of view are the appropriate labels.

Selection of Strategies for Individual Learning Styles.--In this case, the mantle of the Progressive seems the best fit. The model's position that student responsibility for selecting learning activities is preferable is based on motivational research (McClelland, 1965), on evaluation data that supports the position (Christensen, 1975), and values that enter strongly into the choice. While careful programming of the student by matching student aptitudes and related individual differences with specific treatments (Resources in the EBCE lexicon) is supported in theory by many researchers (Cronback and Snow, 1969; Glaser, 1972; Melton, 1967; Rowher, 1971; Gagné, 1970; Rosner, 1972; and Kagan and Kagan, 1970) and though much research has been conducted along these lines, strong empirical support has yet to be found. It is an area of study which, while promising, still needs further

effort. In the meantime, the EBCE model's approach seems a reasonable alternative. The Learning Process and the Progressive labels seem to be appropriate.

Motivation.--The first two EBCE assumptions dealing with intrinsic vs. extrinsic motivation and the enhancement of motivation through student involvement are clearly in the camps of the Learning Process and the Progressive advocates. The writings and research of Guilford (1961), McClelland (1965), Rogers (1962), Maslow (1958), Bruner (1961), Kersh (1963), Taba (1963), and Flanders (1951) can be used to support the EBCE position. In particular, McClelland's research suggests that motivation for achievement is largely based on a number of factors closely akin to the EBCE stance.

A quite different position is taken by spokesmen who maintain that the control of factors pertaining to motivation lie primarily outside the learner, that positive and negative reinforcers are necessary for optimum learning, and that the most efficient method of sustaining high interest and involvement of learners is through careful selection of objectives that accommodate the student's entering behavior (DeCecco, 1968; Skinner, 1953). Friedlander (1965) partly supports the latter position by expressing concern that curiosity and motivation for learning are often confused. He believes that what a learner happens to be curious about may not be a good basis for learning.

The issue then is between internally-controlled vs. externally-controlled factors of motivation. A choice is made on the basis of whether motivation is optimally seen as a natural outcome of high student control over learning or high teacher control for which motivation (1) is an outcome of planned and, to some degree, guaranteed success and (2) consists of an arsenal of techniques used by the teacher

to arouse the student, create expectancies, provide incentives, and administer reward or punishment.

The third and fourth assumptions under motivation which stress a supportive learning environment and the use of both long- and short-range goals is generally accepted by most theorists and researchers and cannot be excluded from any of the four labels as a preferred approach.

Curriculum Organization.--EBCE stresses integration of the academic disciplines. In support are many spokesmen of the Learning Process approach, although most favor the structure of the disciplines as a basis for designing the curriculum, at least until students have grasped the basic knowledge, processes, concepts, and methods of inquiry peculiar to each major discipline (Taba, 1962; Bruner, 1961; Goodlad, 1963; and Parker, 1966). Clear support for subject-area integration, however, was and is provided by spokesmen of the Progressive Education Movement. The Eight Year Study is often cited as vindication for curriculum reform away from separation of disciplines.

Those who push for "discipline-centeredness" would eliminate all non-discipline knowledge from the curriculum and would maintain rather complete separation of the disciplines (Phenix, 1962; King and Brownell, 1966). The issue is whether the curriculum should be problem- and/or interest-centered vs. discipline-centered. Studies conducted so far to assess learning outcomes of both approaches have not been decisive. It is likely that a combination of discipline-centered and problem- or student-interest-centered approaches is most likely to satisfy most educational constituents.

Teacher Role.--The role of the teacher in EBCE is identified as belonging to both the Learning Process approach and the Progressive approach, i.e., primarily non-directive, process-oriented, and relatively non-judgmental of student ideas and values. Empirical support for this approach has been provided by Flanders (1965), Miller (1964), Wood (1970), and Soar (1972). Other writers holding similar views include Rogers (1967), Postman and Weingartner (1971), Goodman (1960), and Holt (1964).

The alternative view, where the teacher is directive, product-oriented, and judgmental, would be more closely aligned with spokesmen whose preferences lie in the direction of a behavior-control model of teaching. Teachers can and should be warm and supportive, but should have adequate knowledge of a subject matter field, have the techniques by which to motivate students (extrinsic motivation), and ability to program instruction. For example, Ryans (1965) describes the functioning of the teacher as information processing, information rewarding, and information control.

Student Role.--The role of the student is a strong one. Just how strong is made quite clear throughout the list of EBCE assumptions. Thus, assumptions pertaining to student role are valid or invalid depending on the extent of agreement with such procedures as student selection of objectives, student selection and planning of learning content, student selection of learning activities, and student self-evaluation. It is, in effect, somewhat of a package purchase.

Learning Methods.--Strong student involvement and a natural corollary, minimal teacher influence, are representative of EBCE. Thus, general identification with the Progressive viewpoint is clear. As has been stated, EBCE assumptions pertaining to learning methods

are closely related to assumptions made about entering behavior of students and to roles of teachers and students. Since the student has a major role in the learning process, the choice of learning methods must be made by again examining the differences between a behavior-control approach to education with the teacher in control and experiential learning with the student playing the lead role.

There is insufficient data to warrant a selection of one approach over another. The behavior-control approach bases its case on the efficient, organized, and sequential accumulation of knowledge and skills, while the experience-based learning approach must base its rationale primarily on motivational factors and the assumed benefits of increasing student responsibility for learning. Resolution, for now, lies within the area of values as well as the predominant needs of students.

Student Grouping.--With regard to opportunities for students to work both individually and in groups, there is little cause for disagreement. The basis for grouping as specified by EBCE (i.e., mutual needs and interest) is more closely identified with the Learning Process and Progressive labels. With the exception of Johnson and Johnson's review of research (1974), which suggests that practically all learning situations should be in the context of cooperative goal structures, and Goodlad and Anderson's findings (1963) that high and low achievers benefit from ability grouping (at the elementary level), EBCE's approach seems as sound, empirically, as any. Studies on grouping at the secondary level are needed, but are extremely scarce.

Context.--EBCE assumptions related to the context of learning activities would generally be supported by advocates of Learning Process and Progressive approaches. However, there were not studies

found that supported the assumptions. While evaluation studies do not show that learning is enhanced nor that attitudes of EBCE students toward the adult working world were improved over their classroom counterparts, the community as a learning context does appeal to students and thus may serve as a strong motivational factor for students otherwise ready to leave school.

Focus of Evaluation.--Various spokesmen for the Learning Product, Learning Process, and Progressive approaches can be identified as supporting criterion-referenced measures as compared with norm-referenced measures. Even though there is considerable agreement on the need for such measures, little in the way of tested procedures is available for building such measures.

Methods of Evaluation.--Learner involvement in evaluation is, for the most part, accepted as inherently good, and some empirical data (McClelland, 1953) supports the practice. Whether the student should be permitted to select the particular method(s) for use depends on one's view on the desired level of student control over education. Spokesmen for the Learning Process and the Progressive approaches would support this.

Standards for Evaluation.--The issue of objective vs. subjective standards is usually not an either/or proposition, but rather a question of the degree to which one takes precedence over the other. Advocates of all four approaches to education are in general agreement on the need and desirability of both. However, theorists who believe that learning objectives should be prespecified at a highly explicit level feel that most learning activities can and should be objectively assessed. The issue of evaluation standards, then, is usually settled when the decision concerning the level of specification of objectives

is made. As such, it is a value issue and not at present an empirical one.

Grading.--EBCE holds that assessment of learner progress or achievement should be based on criteria which are specified in advance and are public. Virtually no disagreement with the position can be found.

In summary, evaluation procedures as practiced by EBCE staff are generally consistent with evaluation theory with two major exceptions. First, whereas diagnostic procedures used prior to engaging in the learning process are recommended by most cognitive theorists to ensure adequate learner preparation for new learning (Gagne', 1968; Ausubel, 1969; Glaser, 1969; and DeCecco, 1968), EBCE does not practice this. Rather, diagnosis is seen as ongoing and based on observation and feedback on actual performance. Second, some writers (Fitch, 1951; Ross, 1944) find that frequent examinations play an important motivational role and agree with others (Ausubel, 1969) that exams help students to consolidate learning.

Conclusions

What then is the result of the analysis thus far? Table 1 represents best estimates of the loci of support for the various EBCE assumptions in terms of the four viewpoints concerning education. This graphic presentation illustrates what has already been stated--that the EBCE model is most closely aligned with Learning-as-a-Process and that many of the views brought forth from the Progressive Education Movement are exemplified. Further, while spokesmen for the Traditionalist and Learning Product viewpoints would find part of the model

acceptable, more than half of its assumptions would be rejected.

Table 1 shows that the EBCE model is generally consistent with two viewpoints. While this straddle position may seem somewhat awkward, it is not so surprising when one considers two points. First, most explanations of educational viewpoints are at a general level and when some degree of specificity is applied, differences often diminish. Second, the EBCE model itself cannot be easily classified. While many model features may be likened to a progressive point of view (e.g., the expected behavioral repertoire of the learner when engaging in the learning process), the same features, when juxtaposed against the model's structure (e.g., required goals and objectives, project monitoring by staff and pre-specified evaluation criteria), take on a more "conservative" look.

Perhaps more to the point, there are a number of general conclusions that can be made concerning EBCE in terms of its status as an empirically-based instructional program. The conclusions, when they indicate that further research is needed, should not be interpreted to mean that the model necessarily falls short. On the contrary, any program of instruction which purports to provide a total educational program for certain numbers of students would exhibit shortcomings if its assumptions were examined.

1. Goals.--EBCE educational goals, while alluded to, were not themselves the subject of analysis. Yet potential adopters of the EBCE model will want to determine whether these goals are appropriate for their students or at least for some students. The goals to be sought through education represent a major and persistent problem for anyone concerned with secondary education. Part of the problem

EBCE Assumptions	Viewpoints			
	Traditionalist 1	Learning Product 2	Learning Process 3	Progressive 4
I. Objectives				
A. Source & Content				
1. Student selection	□	□	■	□
2. Emphasis on process	□	□	■	■
B. Sequence				
3. Based on student interest	□	□	■	■
C. Level of Specification				
4. Includes goals, objectives, and how demonstrated	■	■	■	■
5. End-of-project level objectives	□	□	■	□
II. Entering Behavior				
A. Readiness				
1. Learning tasks based on student perceived need & interests	□	□	■	■
B. Selection of Strategies				
2. Student participation	□	□	■	■
C. Motivation				
3. Assumes intrinsic motivation	□	□	■	■
4. Active involvement in planning, performing & evaluating by student	□	□	■	■
5. Supportive learning environment	■	■	■	■
6. Helped by both long-range goals & short-range objectives	■	■	■	■
III. Instructional Design & Procedures				
A. Curriculum				
1. Interdisciplinary	■	■	■	■
B. Teacher Role				
2. Focus on student's self-concept and values for exploration and decision-making	□	□	□	■
3. Focus on process of learning	□	□	■	■
4. Non-judgmental	□	□	■	■

EBCE Assumptions	Viewpoints 1	2	3	4
C. Student Role				
5. Emphasis on student responsibility for efficient learning	■	■	■	■
6. Secondary students capable of assuming primary responsibility	■	■	■	■
7. Secondary students do not require pre-organized and pre-sequenced material.	□	□	■	■
D. Learning Methods				
8. Methods should evolve from Teacher/student interaction	□	□	■	■
9. Teacher guidance should vary among students	□	□	■	■
E. Student Grouping				
10. Both individual & group work	■	■	■	■
11. Groups formed based on mutual interest	□	□	■	■
F. Context				
12. real-life situations	□	□	■	■
13. community-based	□	□	■	■
IV. Performance Assessment				
A. Focus				
1. Individualistic; not group or norm-based	■	■	■	■
B. Methods				
2. Student involvement	■	■	■	■
3. Student designed products of learning	□	□	■	■
C. Standards				
4. Primarily subjective and individually-based	□	□	■	■
D. Grading				
5. Pre-specification of criteria by teacher and student	■	■	■	■

Table 1
Relationship of EBCE to Four Educational Viewpoints

Note: For complete statements of the EBCE assumptions listed here, the reader is referred to pages 57-60. The same alphabetic-numeric system is repeated.

results from a diversity of cultural values and part is a by-product of decentralization of education control.

Since in almost all cases the major educational goals are pre-selected by curriculum designers, the designers themselves must determine the source of such goals. The range of possible sources includes (a) the structure of the disciplines taken separately, (b) the nature of society, (c) the needs and interests of students, and (d) the learning process itself. In the main, EBCE designers have used the nature of society and the assumed needs and interests of students for the selection of goals. Whether this is a reasoned basis depends on one's view of the purpose of education.

2. Target Audience.-- The EBCE model is seen by the developers as an alternative form of education to serve some students but there have been some assertions that EBCE represents a potentially powerful reform of American education. Educational alternatives and reforms have many potential users; alternatives appeal to a somewhat limited audience and reforms attract a potentially broader audience. At present, there is scanty evidence concerning the appropriate audience for EBCE. Collected data thus far has been on students who have volunteered for the program. Given that the reasons for volunteering among students have varied, it is not known what the effects (affective or cognitive) on students would be if EBCE were to become standard approach to educating students. At the very best, it would seem to be extremely important to investigate what kinds of students (in terms of attitudes, maturity, preferred cognitive styles, etc.) benefit most from EBCE procedures.

A related issue is individualization of instruction. EBCE

individualizes in terms of content of learning activities, means of pursuing content, and evaluation procedures. But in practically all cases individualization is accomplished on the basis of student interest and student-perceived needs. The possibility of assessing the learning status of a student and preplanning the most efficient means of learning in terms of content, sequence, and presentation modes is generally rejected by EBCE. Thus, great responsibility is placed on the student for reasons that include the belief that such responsibility is a good thing in itself, that the practice will result in stronger student motivation, and that learning will have more long-term benefits. Aside from the problems of validating these reasons, the essential question is whether all students, most students, many students, or few students who possess a certain set of characteristics will benefit from the approach.

A second related issue has to do with efficiency vs. motivation. Some believe that efficiency in learning is paramount and that motivational factors are best handled by teachers. Others believe that motivation is paramount and that the issue of efficiency in learning is not really critical when students are disinterested in what they are supposed to learn. It is quite likely that student motivation (assumed in EBCE to result from student involvement in the conduct of learning) varies as a function of student characteristics. For some students, procedures designed to cause high motivation may be the only way to induce them to engage in learning activities. For others, interest in learning may be sufficiently high so that efficiency is the best basis upon which to organize instruction. The identification of student variables that predispose a student to

benefit from a program that stresses the importance of motivation (perhaps to the detriment of efficiency) seems, then, to be of extreme importance.

3. The Cultural Context.-- What will work, on pragmatic grounds, often depends on the time context in which the effort is taking place. For example, it could be assumed that the behavior-control approach to education was determined, by extensive research, to present the best guarantee that learning would take place. Wholesale adoption of this approach to learning (with its careful diagnosis of a student's existing store of knowledge and skills and its scientific programming of content) by schools would undoubtedly create problems for many students. The acceptance of such an approach by a large segment of secondary students is unlikely in view of increased freedom and choice; the unrest of the youth culture; a devotion to such slogans as "relevance," "doing your own thing," "meaningful;" and a growing resistance to being educated to fill a slot.

Therefore EBCE, with its focus on student-generated learning plans and responsibility for their accomplishment and on student interest and perceived needs, should fill a need which is particularly pressing in the present and foreseeable future.

4. Sequencing.-- While the EBCE model does not attempt to classify different types of learning in a sequential sense (as does Gagné's types of learning), it does make a beginning at classifying levels of learning activities which presumably provide a basis for varying levels of involvement with resources (e.g., orientation followed by either exploration or investigation of careers and related curriculum areas). Thus, effort at explicit definitions of

these activity levels along with detailed specification of instructional procedures, possible outcomes and possible levels of learning for each would likely be a step forward.

EBCE as a Theory of Instruction

It was proposed earlier in this chapter that the EBCE model was to be examined as a theory of instruction, and, further, that Snow's fifth level of theory seemed to reasonably represent the current status of the model. An appropriate question has to do with the "advancement potential" of the EBCE model from a fifth-level theory (essentially consisting of a coherent and integrated set of descriptions of instructional procedures and outcomes) to a higher rung on Snow's theory ladder.

In some cases, certain aspects of the model seem to be outreaching others. For example, EBCE leans heavily on motivational theory as justification for program procedures related to strong student involvement with instructional decision-making and, according to Snow, motivation theory is an example of a third level or conceptual theory.

While the EBCE model does not attempt to classify different types of learning in a sequential sense (as does Gagné's types of learning and identified by some as a fourth level of theory), it does make a beginning at classifying levels of learning activities which presumably provide a basis for varying levels of learning (e.g., orientation, exploration, and investigation of careers and related curriculum areas). Thus, effort at clear definitions of these activity levels along with detailed specification of instructional procedures and possible levels of learning for each would likely be a step forward (or higher).

The model seems, in a few respects, to be more consistent with the sixth level of theory (Formative hypotheses). Several procedures are and continue to be hypotheses against which evaluation data have been collected. For example, it is hypothesized that the model is an appropriate learning vehicle for most students. The extent to which this is the case has not been adequately tested. Another example--it has been hypothesized that students who spend time in the community alongside working adults will develop improved attitudes toward the working world. Thus far, such results have not been supportive.

The status of the EBCE model as a theory of instruction seems somewhat mixed. Certainly this is not an unusual state of affairs because of the comprehensiveness of the model. In some cases, the model rests on fairly strong support and in other cases, the assumptions remain as hypotheses yet to be validated, and in a few cases, yet to be tested. But, as has been expressed repeatedly, the acceptance of the model by school people will, for some time, be dependent not on the extent to which the model's procedures are validated empirically, but on the values held concerning the purposes of education, the nature of learning, and the nature of the learner.

Assuming that the educational values implicit in the model are acceptable, what is the scope of evaluation or research effort needed? The list below consists of a number of questions for which sufficient reliable data do not now exist and against which studies should be directed.

1. To what extent can the EBCE model's levels of career study and involvement (i.e., orientation, exploration, and investigation) be considered as sets of sequential

learning activities which can be used to guide learning coordinator/student planning?

2. What kinds of students are most likely to benefit from the FWL-EBCE program of instruction? Associated student variables include age, sex, ethnicity, social maturity, independence, initiative, personal and social reliability, achievement motive, basic skills achievement levels, and existing commitments to staying in school.*
3. What would be the effect of modifying the EBCE model to incorporate what is known about varying learning styles and preferences of students with regard to the amount of teacher guidance, structured vs. non-structured learning, etc?
4. Do student-selected learning paths (i.e., content and learning activity sequences) result in effective acquisition of knowledge and skills?
5. What is the effect of modifying EBCE procedures to promote student grouping for the achievement of goals emphasizing cooperation.
6. Is there an effect, over time, on student attitudes toward the work ethic as a result of exposure to working adults in the community?
7. What would be the effect on student learning if community resource persons participated in training workshops prior to contact with students.

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* This question seems of extreme significance because of the relative importance placed on procedures to induce intrinsic motivation rather than on procedures to ensure efficient learning.

8. What is the effect of EBCE on students in terms of their success in pursuing college or university degrees?

Implications

The implications of this analysis are discussed in terms of (1) school district staffs, (2) EBCE developers, (3) the National Institute of Education, and (4) the educational research and development community.

School Districts -- It is a safe estimate that most instructional programs to be found in schools were not selected because they represented, or were a part of, a validated theory of instruction. And it is not likely that this state of affairs will change radically. It can be hoped, however, that when new programs are considered to replace existing ones, school staffs will examine their rationales.

In the case of EBCE, what are adopters taking on? In the first place, they are installing a program which has received more developmental and evaluation effort than most. They are putting into place an integrated program whose assumptions are internally consistent to a remarkable degree when one considers that it is a comprehensive, total program of instruction. It is a program for which student volunteers and their parents as well are almost unanimous in their praise and support (Spotts, et al., 1974, and Christensen, et al., 1975).

Without question, the program works for some students. And if educators "like" EBCE's values about purposes of education as well as its procedures, it would seem that the FWL-EBCE model comes quite close to being as empirically validated as any program they could

find. There is one caveat. Probably the single most important and unanswered question is: Which students are most likely to benefit?

EBCE Developers.-- While the EBCE development staff has put together a complex and well-documented program, there are a number of issues that need their attention. In addition to the several unanswered questions of the previous section, they need to address others pertaining to ease of adoption and implementation of the model by schools, the kinds of needed assistance and training, and the staying power of the model. Thus, in addition to theoretical validation, the developers will also want to consider feasibility issues.

The National Institute of Education.-- NIE, which funded the bulk of the developmental effort, is naturally concerned with the acceptance of the model by school districts and with learning what it can from implementation efforts by schools. The success of an innovation often depends on the degree to which it is used by the right people and for the appropriate target audience. Thus NIE's interests are very similar to those of the FWL staff who developed the model--particularly in regard to defining the student population for which the model is best suited.

Research and Development Community.-- It is hoped that researchers and evaluators not associated with the EBCE research and development effort will be interested in and apply their resources to many of the as yet unanswered questions. While outcomes of basic research have been useful in examining FWL-EBCE assumptions, it seems likely that further validation of the existing model as well as variations on the model will occur as a result of evaluation studies with ongoing programs.

In conclusion, EBCE is an innovation designed to respond to what students are perceived to need in the society of today. EBCE is also consistent with the more general desire on the part of educators to find ways of adapting schools to the different individuals who attend them. But adoption of an innovative program designed to meet individual needs will not be easy for an institution (the school) which is usually and understandably concerned with coordination and control. EBCE is a way of acquiring knowledge. And, as Polanyi (1958) suggests, "Every way of acquiring knowledge is risky."

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APPENDIX A

Far West Laboratory

Experience-Based Career Education Documents

These documents are the published embodiment of the Far West Laboratory model of EBCE. They constitute the principal developmental product of a large number of people over a four-year period under the direction of Karen Chatham and James Johnson. All model documents are addressed to adopters of the model and contain the basic information for its implementation.

Volume I: MANAGEMENT

1. Program Overview
2. Administration
3. External Relations
4. Student Recruitment and Selection

Volume II: RESOURCES

5. Resource Development
6. Guide for Resource Persons
7. Package Development

Volume III: GUIDANCE AND INSTRUCTION

8. Orientation
9. Learning Coordination
10. Supplementary Curriculum

Volume IV: PROJECT PLANNING PACKAGES

11. Commerce
12. Communications and Media
13. Life Science
14. Physical Science
15. Social Science